9TH INTERNATIONAL ANTALYA SCIENTIFIC RESEARCH AND INNOVATIVE STUDIES CONGRESS

20-23 NOVEMBER 2025 / ANTALYA, TÜRKİYE

ABSTRACT BOOK

EDITOR
Prof. Dr. Sedat CERECİ

ISBN: 979-8-89695-265-7

IX-INTERNATIONAL ANTALYA

SCIENTIFIC RESEARCH AND INNOVATIVE STUDIES CONGRESS

November 20-23, 2025 – Antalya, TÜRKİYE

16.12.2025

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CONGRESS ID

CONGRESS TITLE

IX-INTERNATIONAL ANTALYA SCIENTIFIC RESEARCH AND INNOVATIVE STUDIES CONGRESS

DATE AND PLACE

November 20-23, 2025 - Antalya, TÜRKİYE

ORGANIZATION

IKSAD INSTITUTE

EDITOR

Prof. Dr. Sedat CERECİ

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Samet KUŞKIRAN

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Accepted Article (Türkiye): 144

Accepted Article (Other Countries): 167

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INTERNATIONAL ANTALYA

SCIENTIFIC RESEARCH AND INNOVATIVE STUDIES CONGRESS-IX

16.12.2025
REF: Akademik Teşvik

İlgili makama;

9. ULUSLARARASI ANTALYA Bilimsel Araştırmalar ve Yenilikçi Çalışmalar Kongresi, 20-23 Kasım 2025 tarihleri arasında Antalya'da 39 farklı ülkenin (Türkiye 144 bildiri- Diğer ülkeler 167 bildiri) akademisyen/araştırmacılarının katılımıyla gerçekleşmiştir

Kongre 16 Ocak 2020 Akademik Teşvik Ödeneği Yönetmeliğine getirilen "Tebliğlerin sunulduğu yurt içinde veya yurt dışındaki etkinliğin uluslararası olarak nitelendirilebilmesi için Türkiye dışında en az beş farklı ülkeden sözlü tebliğ sunan konuşmacının katılım sağlaması ve tebliğlerin yarıdan fazlasının Türkiye dışından katılımcılar tarafından sunulması esastır." değişikliğine uygun düzenlenmiştir.

Bilgilerinize arz edilir,

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Mustafa Latif EMEK
On behalf of Organizing Board

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Konu : Kongre Düzenlenmesi
Sayı : BSE-2 1 Kasım 2025

İLGİLİ KURUMA

İçişileri Bakanlığı tarafından tahsis edilen 06-146-071 tescil kodu ile Tüzel Kişiliğe sahip olan İKSAD Enstitüsü 5253 sayılı kanuna uygun olarak "Bilimsel araştırmalar ve akademik çalışmalar" alanında ulusal ve uluslararası düzeyde faaliyetlerini yürütmektedir.

Kurumumuzun Yönetim Kurulu 15 Ocak 2024 tarihinde saat 10.30'da "Bilimsel Diplomasi Projesi" görüşmeleri ile "Bilimsel Kongreler Düzenlenmesi" gündemleri ile toplanmış ve alınan (2 numaralı) karara istinaden aşağıda detayları yazılı olan bilimsel etkinliğin düzenlenmesine ve etkinliğe ilişkin resmi görevlendirme konusunda karar vermiştir.

Bilgi ve gereğini rica ederim

Dr. Mustafa Latif EMEK
Yönetim Kurulu Adına

Etkinlik Adı: 9. ULUSLARARASI ANTALYA Bilimsel Araştırmalar ve Yenilikçi Çalışmalar Kongresi
Etkinlik Tarihi ve Yeri: 20-23 Kasım 2025, Antalya

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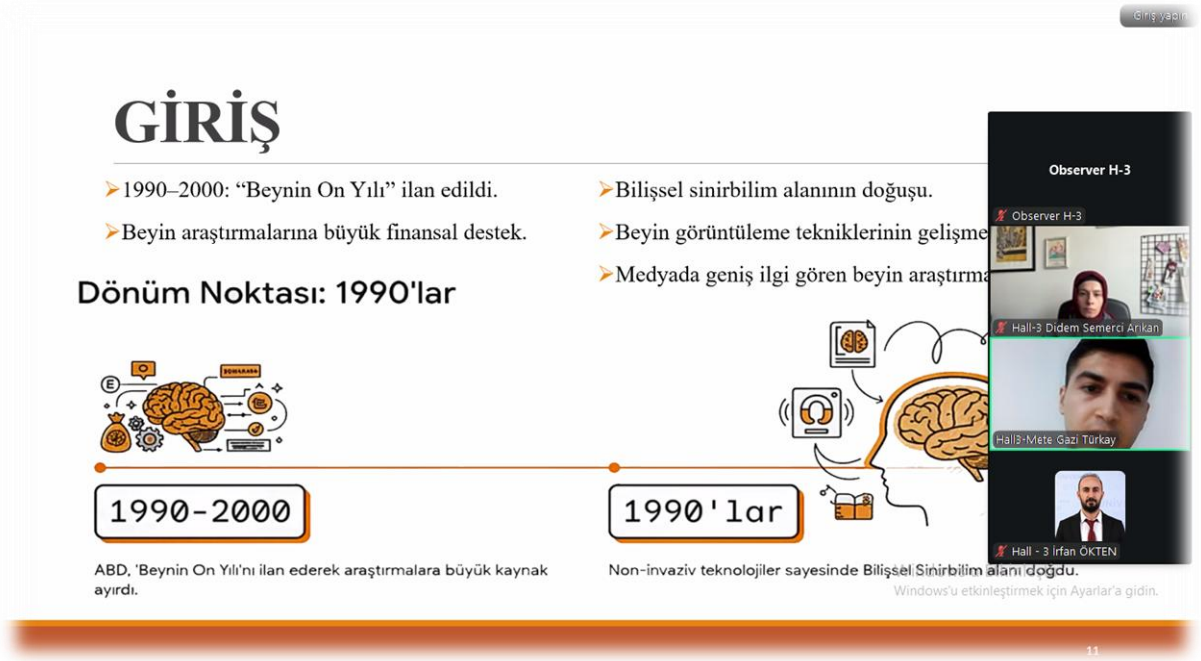

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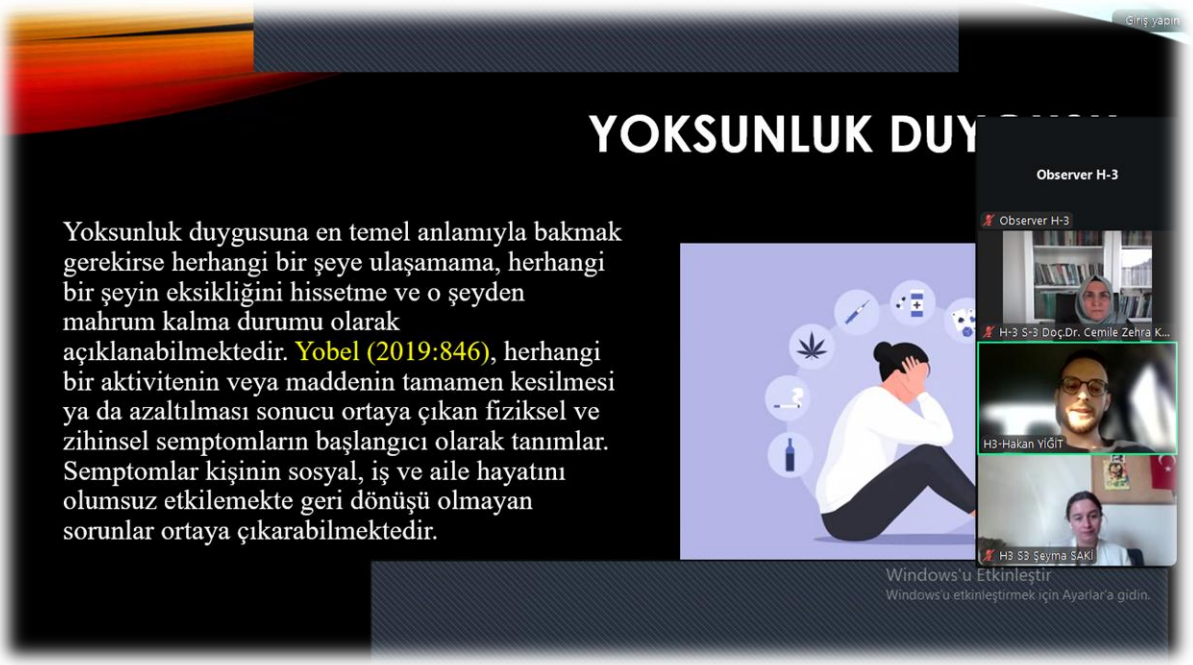

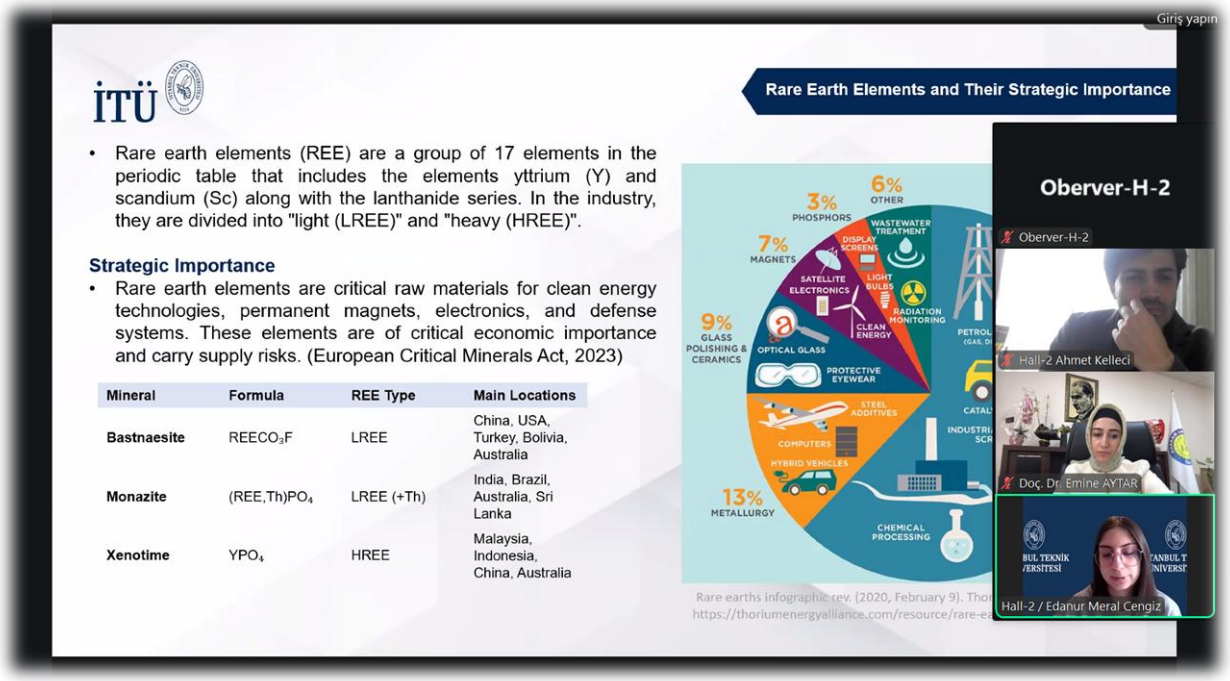

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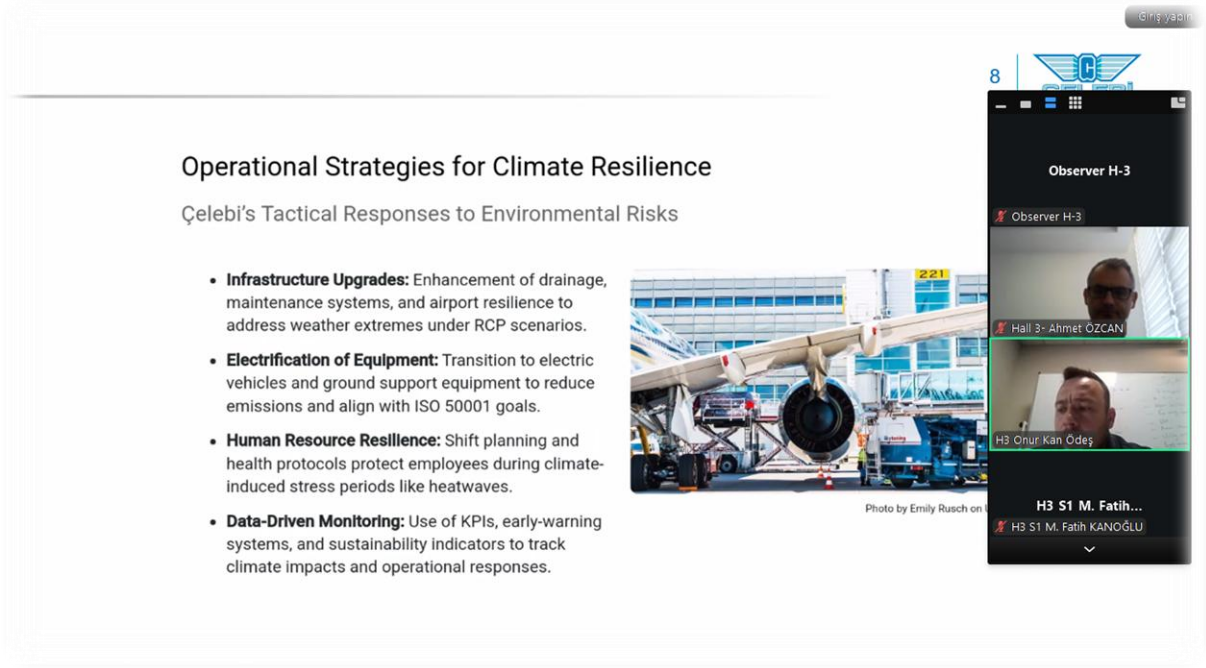

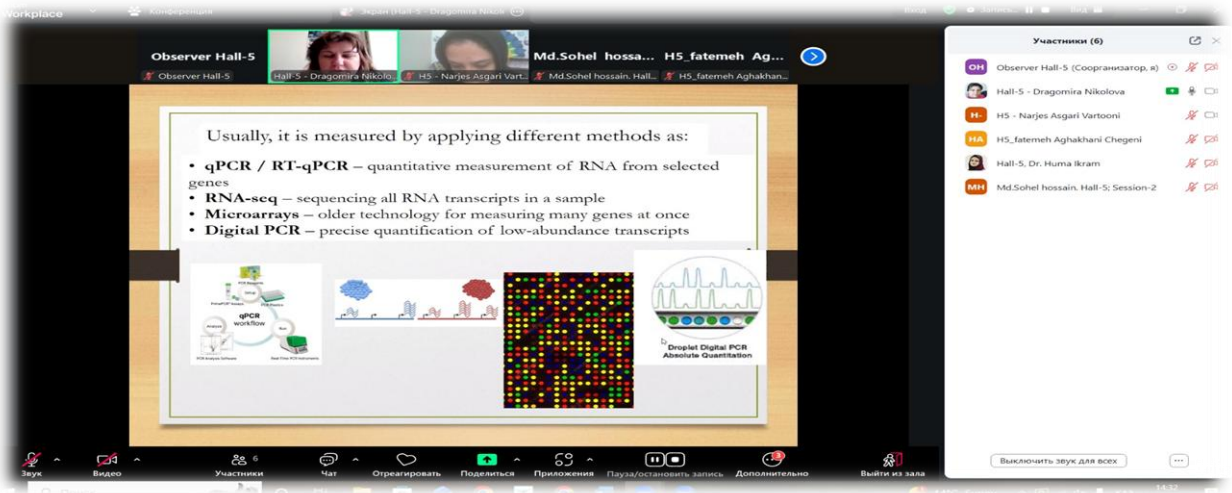

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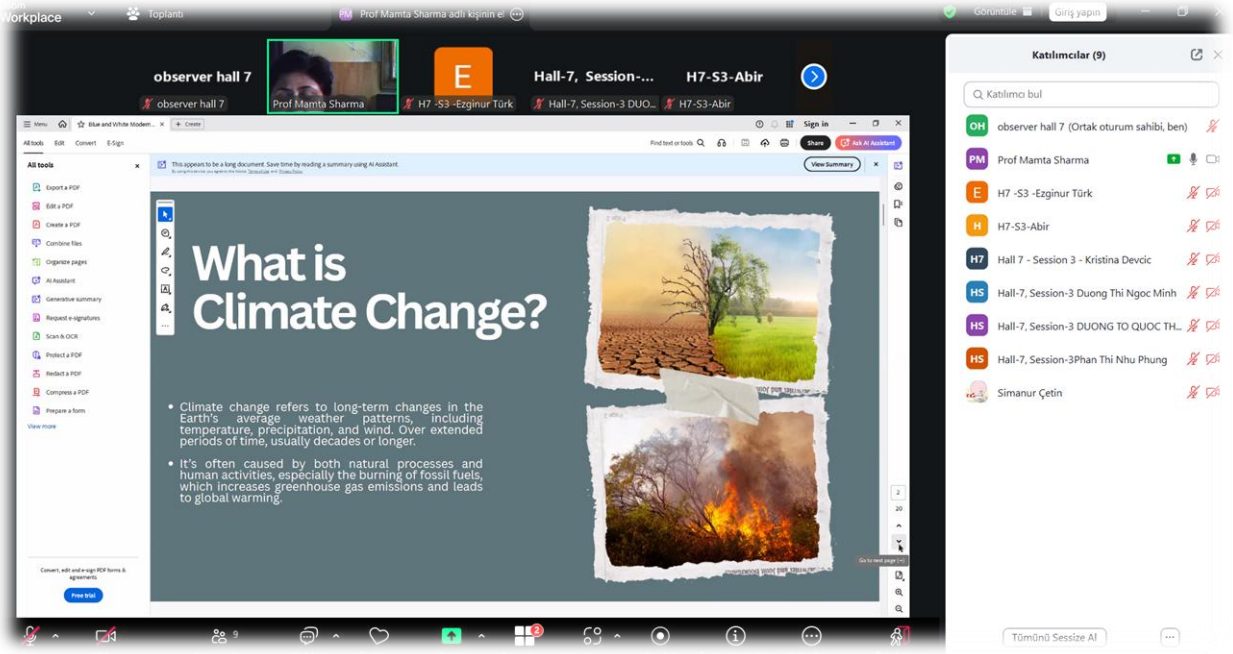

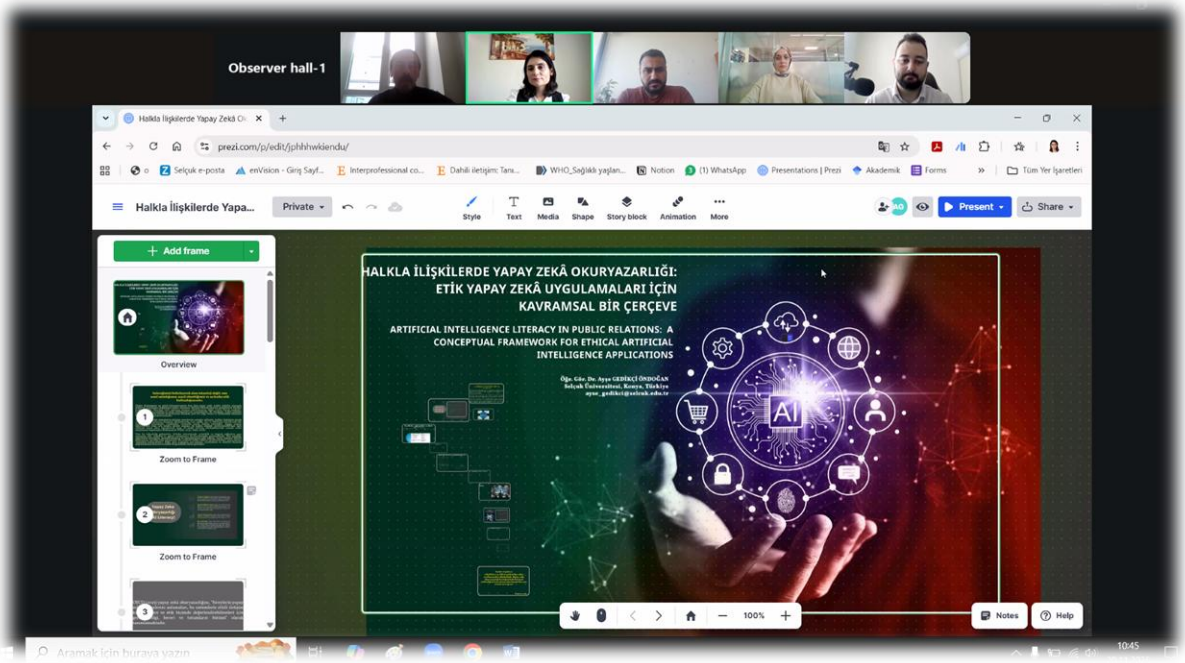

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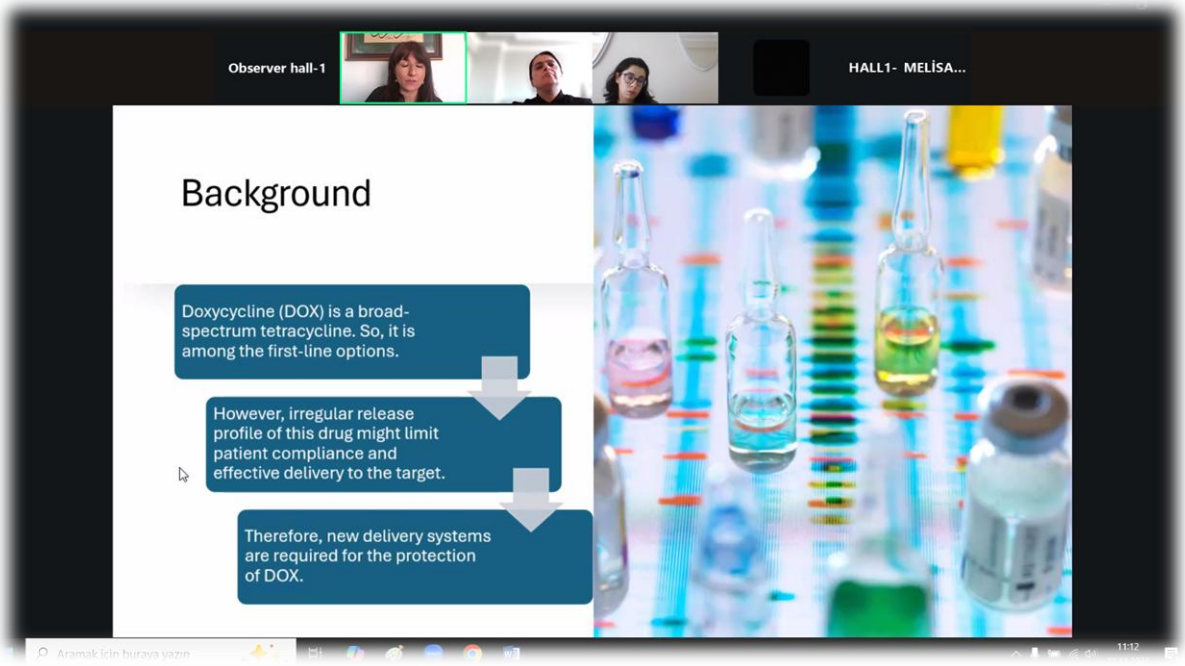

IX-International Antalya
Scientific Research and Innovative Studies Congress
November 20-23, 2025 - Antalya

CONGRESS PROGRAM
Online (with ZOOM Conference)

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- To be able to make a meeting online, login via **https://zoom.us/join** site, enter ID instead of "Meeting ID or Personal link Name'' and solidify the session.
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- Moderator is responsible for the presentation and scientific discussion (question-answer) section of the session.

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FACE TO FACE PRESENTATIONS

21.11.2025 / Session-1

ANKARA LOCAL TIME 09 00 : 11 00		Antalya Büyükşehir Belediyesi, Bülent Ecevit Kültür Merkezi

HEAD OF SESSION: Prof. Dr. Sedat CERECİ

AUTHORS	AFFILIATION	TOPIC TITLE
Prof. Dr. Sedat CERECİ	Hatay Mustafa Kemal University TÜRKİYE	THE RELATIONSHIP BETWEEN ARTIFICIAL INTELLIGENCE AND SOCIAL MEDIA
Tuğba ÖZTÜRK İbrahim TOPUZ Res. Assist. Ferzan KALAYCI EMEK	Kütahya Health Sciences University TÜRKİYE	THE RELATIONSHIP BETWEEN CYBERCHONDRIA LEVELS, E-HEALTH LITERACY, AND ARTIFICIAL INTELLIGENCE LITERACY IN ADULT WOMEN
Berkan ULUSOY Fikriye Nisa YILMAZ	Bursa Uludağ University TÜRKİYE	DIGITALIZATION OF VEHICLE PART COMPARISON AND COST ANALYSIS
Assist. Prof. Dr. Ercan COŞGUN	Kırklareli University TÜRKİYE	MODEL-SUPPORTED IMAGE CLASSIFICATION APPLICATION BASED ON ESP32
Harun GEZİCİ	Kırklareli University TÜRKİYE	GOBL-FOX: MULTI-PRODUCT BATCH PLANT OPTIMIZATION VIA FOX ALGORITHM ENHANCED WITH GHOST OPPOSITION-BASED LEARNING
Duygu ALEMDAR Hüseyin PEHLİVAN	Eska Valve Inc. Sakarya TÜRKİYE Sakarya University TÜRKİYE	PROCESS IMPROVEMENTS IN REGULATOR PRODUCTION WITH SERVO-CONTROLLED SYSTEMS AND KAIZEN APPROACHES
Assist. Prof. Dr. Esin ASLANPAY Assoc. Prof. Dr. Esin CANDAN Assist. Prof. Dr. Doğu KAYIŞKAN Prof. Dr. Serpil ÜNAL KESTANE	Dokuz Eylül University TÜRKİYE	A CONCEPTUAL ANALYSIS OF ENTREPRENEURIAL BARRIERS FROM A GENDER PERSPECTIVE

FACE TO FACE PRESENTATIONS

21.11.2025 / Session-2

ANKARA LOCAL TIME		Antalya Büyükşehir Belediyesi, Bülent Ecevit Kültür Merkezi
11 30 : 13 30		

HEAD OF SESSION: Prof. Dr. Mert TOPCU

AUTHORS	AFFILIATION	TOPIC TITLE
Assoc. Prof. Dr. Senem AKKOÇ Assist. Prof. Dr. Eyüp BAŞARAN	Süleyman Demirel University TÜRKİYE Batman University TÜRKİYE	SYNTHESIS, CHARACTERIZATION AND CYTOTOXIX ACTIVITY ON PC3 CELL LINE OF SALICYLALDEHYDE-BASED SCHIFF BASE
Dr. Eray HARMAN Sena ERDUR HARMAN	State Hydraulic Works (DSI) 31. Department Directorate Eskişehir TÜRKİYE Eskişehir Technical University TÜRKİYE	IRRIGATION WATER USE EFFICIENCY UNDER DROUGHT AT MUSAÖZÜ DAM, ESKİŞEHİR (2016–2024): FINDINGS SUPPORTED BY SENTINEL-2 NDWI
Assoc. Prof. Dr. Zhaksyntay KAIRBEKOV Manshuk ESENALIEVA Indira DZHELDYBAEVA Saltanat SUIMBAYEVA	Al-Farabi Kazakh National University KAZAKHSTAN	SELECTIVE HYDROGENATION OF ACETYLENE HYDROCARBONS AND THEIR MIXTURES ON MULTICOMPONENT SKELETAL NICKEL CATALYSTS
Zeynep ÇOLAKOĞLU Nizami Barkın ELMAS	Vestel White Goods Inc. R&D Department Washing Machine Factory, Manisa, TÜRKİYE	ODOR REMOVAL FROM LAUNDRY WITH AROMA REFRESH TECHNOLOGY AND LONG-LASTING FRAGRANCING WITH SPECIALLY DESIGNED PERFUMES
Res. Assist. Hilal MEMİŞ KAMACI Prof. Dr. Mustafa Kemal YILMAZ	Samsun University TÜRKİYE	ANTECEDENTS OF EXPORT SEGMENTATION STRATEGY EFFECTIVENESS: THE PERSPECTIVE OF MARKET TURBULENCE, COMMITMENT, STRATEGY AND DIVERSITY
Nuri BULDAN Prof. Dr. Mert TOPCU	Afyon Kocatepe University TÜRKİYE Alanya Alaaddin Keykubat University TÜRKİYE	GEOPOLITICAL RISK AND BANKING PERFORMANCE: EVIDENCE FROM DEVELOPING ECONOMIES
Yunus Emre KIZILTAŞ Assist. Prof. Dr. Bülent ALTAY	Afyon Kocatepe University TÜRKİYE	THE IMPACT OF THE ECONOMIC CONFIDENCE INDEX AND GEOPOLITICAL RISK INDEX ON FOREIGN DIRECT INVESTMENT: THE CASE OF TURKIYE (2013–2025)
Yunus Emre KIZILTAŞ Prof. Dr. Mert TOPCU	Afyon Kocatepe University TÜRKİYE Alanya Alaaddin Keykubat University TÜRKİYE	*THE RELATIONSHIP BETWEEN CREDIT RISK PREMIUM AND YOUTH UNEMPLOYMENT RATE: THE CASE OF TÜRKİYE*

FACE TO FACE PRESENTATIONS

21.11.2025 / Session-3

ANKARA LOCAL TIME 14 00 : 16 00		Antalya Büyükşehir Belediyesi, Bülent Ecevit Kültür Merkezi

HEAD OF SESSION: Prof. Dr. Emine KÖSEOĞLU

AUTHORS	AFFILIATION	TOPIC TITLE
Prof. Dr. Emine KÖSEOĞLU	Fatih Sultan Mehmet Vakıf University TÜRKİYE	THE DRAMATURGY OF AWARENESS: PEDAGOGICAL FUNCTIONS OF REFLECTIVE-PROVOCATIVE QUESTIONS IN THE ARCHITECTURAL DESIGN STUDIO
Muzaffer Tacettin KÜLLAÇ Prof. Dr. Olkan ÇUVALCI	Karadeniz Technical University TÜRKİYE	VERTICAL RESOLUTION SENSITIVITY OF THE GRAYSCALE MEAN FOR TOOL-WEAR MONITORING IN TURNING
Lect. Dr. Yusuf ÖZTÜRK	Kırklareli University TÜRKİYE	THE CONSTRUCTION OF FAMILY IN THE HYPERREAL WORLD OF TURKISH TELEVISION SERIES: THE EXAMPLE OF 'KIZILCIK ŞERBETİ'
Prof. Dr. Serpil ÜNAL KESTANE Assist. Prof. Dr. Doğu KAYIŞKAN Assoc. Prof. Dr. Esin CANDAN Assist. Prof. Dr. Esin ASLANPAY	Dokuz Eylül University TÜRKİYE	A READING ON THE GENDER OF ENTREPRENEURSHIP AND WOMEN'S ENTREPRENEURSHIP
Gülüstan USANMAZ Şeyma ŞİĞVA Assoc. Prof. Dr. H.Ekin OKTAY	Van Yüzüncü Yıl University TÜRKİYE	AN INVESTIGATION OF VAN YYU COASTAL PARK IN THE CONTEXT OF INFORMATION PROCESSING THEORY
Assoc. Prof. Dr. Volkan GELEN Prof. Dr. Adem KARA Assoc. Prof. Dr. Ali YEŞİLDAĞ	Kafkas University TÜRKİYE Erzurum Technical University TÜRKİYE Kafkas University TÜRKİYE	EFFECTS OF CHITOSAN–SILVER NANOPARTICLE-LOADED HYPERFORIN ON CELL VIABILITY IN A 6-OHDA-INDUCED PARKINSON'S DISEASE CELL MODEL

FACE TO FACE PRESENTATIONS

21.11.2025 / Session-4

ANKARA LOCAL TIME		Antalya Büyükşehir Belediyesi, Bülent Ecevit Kültür Merkezi
16 00 : 17 00		

HEAD OF SESSION: Assoc. Prof. Dr. Senem AKKOÇ

AUTHORS	AFFILIATION	TOPIC TITLE
Duygu ALEMDAR Hüseyin PEHLİVAN	Eska Valve Inc. Sakarya TÜRKİYE Sakarya University TÜRKİYE	EFFECT OF THE BORON OIL SEPARATION SYSTEM ON WATER AND OIL CONSUMPTION
İbrahim TOPUZ Tuğba ÖZTÜRK Res. Assist. Ferzan KALAYCI EMEK	Kütahya Health Sciences University TÜRKİYE	THE RELATIONSHIP BETWEEN THE USE OF GENERATIVE ARTIFICIAL INTELLIGENCE AMONG UNIVERSITY STUDENTS AND THEIR CRITICAL THINKING AND PROBLEM-SOLVING SKILLS
Assist. Prof. Dr. Eyüp BAŞARAN Assoc. Prof. Dr. Senem AKKOÇ	Batman University TÜRKİYE Süleyman Demirel University TÜRKİYE	SYNTHESIS AND ANTICANCER EVALUATION OF N-TOSYLHYDRAZONE COMPOUND
Sena ERDUR HARMAN Dr. Eray HARMAN	Eskişehir Technical University TÜRKİYE State Hydraulic Works (DSI) 31. Department Directorate Eskişehir TÜRKİYE	PRE- AND POST-LAND CONSOLIDATION PROJECT (LCP) NDVI ASSESSMENT OF AGRICULTURAL CHANGE: BOZAN, ESKİŞEHİR (2000–2025)
Nuri BULDAN Assist. Prof. Dr. Bülent ALTAY	Afyon Kocatepe University TÜRKİYE	ECONOMETRIC ANALYSIS OF REGIONAL FINANCIAL PORTFOLIO BEHAVIOURS: THE CASE OF TÜRKİYE (2008 – 2024)
Özlem KAHRAMAN Lect. Hale Tuğçe KARAKOÇ Res. Assist. Hilal MEMİŞ KAMACI Prof. Dr. Mustafa Kemal YILMAZ	Samsun University TÜRKİYE Isparta University of Applied Sciences TÜRKİYE Samsun University TÜRKİYE Samsun University TÜRKİYE	BRAND PERCEPTION BEYOND BORDERS: COMPARISON OF LOGISTICS MARKETING DYNAMICS THROUGH CONSUMER COMPLAINTS FROM TURKİYE AND THE USA

FACE TO FACE PRESENTATIONS

21.11.2025 / Session-5

ANKARA LOCAL TIME		Antalya Büyükşehir Belediyesi, Bülent Ecevit Kültür Merkezi
17 00 : 19 00		

HEAD OF SESSION: Prof. Dr. Emine KÖSEOĞLU

AUTHORS	AFFILIATION	TOPIC TITLE
Prof. Dr. Emine KÖSEOĞLU	Fatih Sultan Mehmet Vakıf University TÜRKİYE	FROM CINEMATIC VESTIBULAR CUES TO ARCHITECTURAL AFFORDANCES: A PHENOMENOLOGICAL AND ECOLOGICAL PERSPECTIVE
Muzaffer Tacettin KÜLLAÇ Prof. Dr. Olkan ÇUVALCI	Karadeniz Technical University TÜRKİYE	EVALUATION OF GRAYSCALE MEAN AS A TOOL WEAR INDICATOR: A FEED MARK-BASED APPROACH
Rojin ERKMEN Berfin BEDİR Assoc. Prof. Dr. H.Ekin OKTAY	Van Yüzüncü Yıl University TÜRKİYE	EVALUATION OF VAN CASTLE IN THE CONTEXT OF THE PROSPECT REFUGE THEORY
Berfin BEDİR Rojin ERKMEN Assoc. Prof. Dr. H.Ekin OKTAY	Van Yüzüncü Yıl University TÜRKİYE	INVESTIGATION OF TOPOPHILY THEORY IN THE CONTEXT OF VAN YÜZÜNCÜ YIL UNIVERSITY ZEVE CAMPUS
Şeyma ŞİĞVA Gülüstan USANMAZ Assoc. Prof. Dr. H.Ekin OKTAY	Van Yüzüncü Yıl University TÜRKİYE	EVALUATION OF VAN YÜZÜNCÜ YIL UNIVERSITY CAMPUS IN THE CONTEXT OF BIOPHILIC DESIGN
Assoc. Prof. Dr. Ali YEŞİLDAĞ Prof. Dr. Adem KARA Assoc. Prof. Dr. Volkan GELEN	Kafkas University TÜRKİYE Erzurum Technical University TÜRKİYE Kafkas University TÜRKİYE	SYNTHESIS AND CHARACTERIZATION OF SILVER, CHITOSAN, AND SILVER-CHITOSAN NANOPARTICLES
Assoc. Prof. Dr. Ali YEŞİLDAĞ Assoc. Prof. Dr. Volkan GELEN Prof. Dr. Adem KARA	Kafkas University TÜRKİYE Kafkas University TÜRKİYE Erzurum Technical University TÜRKİYE	EFFECTS OF FLAVONOID–NANOPARTICLE COMBINATIONS ON CELLULAR PROTECTION AND BIOAVAILABILITY

ONLINE PRESENTATIONS

20.11.2025 / Hall-1, Session-1

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
$10^{00} : 12^{00}$		ZOOM PASSCODE: 123456

HEAD OF SESSION: Assist. Prof. Dr. Ali CÜVİTOĞLU

AUTHORS	AFFILIATION	TOPIC TITLE
Assist. Prof. Dr. Ali CÜVİTOĞLU Dr. Fatma DENİZ	Adana Alparslan Türkeş Science and Technology TÜRKİYE Mersin University TÜRKİYE	MACHINE LEARNING-BASED CLIMATE PREDICTION IN TURKEY: INTEGRATING CO_2, GLOBAL TEMPRATURE ANOMALY, AND PRECIPITATION DATA
MSc. Kemal TÜMEN Assist. Prof. Dr. Mehmet MİLLİ	Bolu Abant İzzet Baysal University TÜRKİYE	ARTIFICIAL INTELLIGENCE-BASED CLASSIFICATION AND DETECTION OF LIQUID OIL USABILITY USING GAS SENSOR DATA
Zeynep YAVUZ Zeynep Nur SANDIKCI	Sipay Electronic Money and Payment Services Inc., Istanbul TÜRKİYE	AI-BASED AGRICULTURAL PRODUCT EVALUATION AND TRADE PLATFORM
Zeynep YAVUZ Zeynep Nur SANDIKCI	Sipay Electronic Money and Payment Services Inc., Istanbul TÜRKİYE	A SMART AND SECURE DIGITAL PAYMENT PLATFORM FOR VENDING MACHINE SYSTEMS
Eda KILIÇ Prof. Dr. Hasan Tahsin KEÇELİGİL	Ondokuz Mayıs University TÜRKİYE	ARTIFICIAL INTELLIGENCE APPLICATIONS IN THE HEALTHCARE SECTOR
Eda KILIÇ Prof. Dr. Hasan Tahsin KEÇELİGİL	Ondokuz Mayıs University TÜRKİYE	HEALTH INFORMATICS AND SOFT DEVELOPMENT IN HEALTHCARE
Lect. Dr. Ayşe GEDİKÇİ ÖNDOĞAN	Selçuk University TÜRKİYE	ARTIFICIAL INTELLIGENCE LITERACY IN PUBLIC RELATIONS: A CONCEPTUAL FRAMEWORK FOR ETHICAL ARTIFICIAL INTELLIGENCE APPLICATIONS
Oğuzcan ÖZDEMİR Assoc. Prof. Dr. Hasan BADEM	Kahramanmaraş Sütçü İmam University TÜRKİYE	A NEW METAHEURISTIC METHOD FOR ASSESSING UNIQUENESS IN NFT TECHNOLOGY

All participants must join the conference 10 minutes before the session time.
Every presentation should last not longer than 10-12 minutes. Kindly keep your cameras on till the end of the session.

ONLINE PRESENTATIONS

20.11.2025 / Hall-2, Session-1

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
10 ^{00} : 12 ^{00}		ZOOM PASSCODE: 123456

HEAD OF SESSION: Prof. Dr. Emre ÇELİK

AUTHORS	AFFILIATION	TOPIC TITLE
Ahmet GÜZELCE Assoc. Prof. Dr. Murat ARIKAN	Gazi University TÜRKİYE	A HYBRID META-HEURISTIC APPROACH FOR PRODUCTION PLANNING OF LIMITED SHELF-LIFE PREPREG MATERIALS AT TAI
Halil AKPINAR Assoc. Prof. Dr. Ahmet FEYZİOĞLU	Eae Technology Research Development Industry and Trade Inc. İstanbul TÜRKİYE Chester University UK	ASSA ABLOY DOOR LOCK AND KNX SYSTEM INTEGRATION
Selin BEYAZ Prof. Dr. Uğur YÜZGEÇ Assist. Prof. Dr. İrfan ÖKTEN	Bilecik Seyh Edebali University TÜRKİYE Bitlis Eren University TÜRKİYE	PACKSENTRY: A RASPBERRY PI-BASED INTELLIGENT SYSTEM FOR AUTOMATED PACKAGE DAMAGE DETECTION AND BARCODE TRACKING
Res. Assist. Melih AKTAŞ Prof. Dr. Emre ÇELİK	Düzce University TÜRKİYE	DESIGN AND PERFORMANCE ANALYSIS OF A SINGLE-PHASE BOOST-TYPE POWER FACTOR CORRECTION (PFC) CIRCUIT
Res. Assist. Dinçer MADEN Prof. Dr. Emre ÇELİK	Düzce University TÜRKİYE	DESIGN OF SPEED CONTROLLER FOR THE FREQUENCY STABILITY OF SYNCHRONOUS GENERATOR BASED ON REAL-TIME DATA
Prof. Dr. Emre ÇELİK Lect. Dr. Mehmet KARAYEL	Düzce University TÜRKİYE	ANFIS BASED BRUSHLESS DIRECT CURRENT MOTOR SPEED CONTROL
Lect. Dr. Mehmet KARAYEL Prof. Dr. Emre ÇELİK	Düzce University TÜRKİYE	MOTOR SPEED CONTROL WITH FRACTIONARY ORDER PID CONTROLLER BASED ON WILD HORSE OPTIMIZATION ALGORITHM
Muhammet Yasin SOKAT	Meditera Medical Materials Industry and Trade Inc. İzmir TÜRKİYE	DEVELOPMENT OF A SPIRAL HEATED WIRE BREATHING CIRCUIT
Serhat SEVİNÇ Prof. Dr. Murat REİS	Bursa Uludağ University TÜRKİYE	A NEW CONCEPT FOR MEASURING MASS PRODUCTION PARTS IN A VIBRATING ENVIRONMENT WITH A PROFILE LASER-MOUNTED COBOT

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ONLINE PRESENTATIONS

20.11.2025 / Hall-3, Session-1

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
10 ^{00} : 12 ^{00}		ZOOM PASSCODE: 123456

HEAD OF SESSION: Assoc. Prof. Dr. Ünsal DENİZ

AUTHORS	AFFILIATION	TOPIC TITLE
Assist. Prof. Dr. Banu GEBOLOĞLU	Tokat Gaziosmanpaşa University TÜRKİYE	THE REPRESENTATION OF FEMALE COMPOSERS OF TURKISH MUSIC IN ACADEMIC RESEARCH
Assoc. Prof. Dr. Ünsal DENİZ Lect. Gülgün ÇOLAK	İnönü University TÜRKİYE Gaziantep University TÜRKİYE	MODAL STRUCTURE IN THE PRE-CLASSICAL PERIOD KAR FORM: THE EXAMPLE OF ŞEYH ABDÜLÂLÎ'S EVİÇ KAR
Assoc. Prof. Dr. Ünsal DENİZ	İnönü University TÜRKİYE	AN ANALYSIS OF HARMONIC APPROACHES USED BY NECIL KÂZIM AKSES IN "FIVE CHORAL PIECES BASED ON FOLK SONGS"
Assoc. Prof. Dr. Süreyya İLKILIÇ	Turkish-German University TÜRKİYE	THE MAHOMET MOTIF IN VOLTAIRE AND GOETHE
Merve ÖZDEMİR	Kocaeli University TÜRKİYE	DREAMS IN THE BOOK OF DANIEL: THE SYMBOLIC LANGUAGE OF THE DIVINE PLAN
Dr. Nazlı BAL HATUNOĞLU	Fırat University TÜRKİYE	A LOOK AT "REBIRTH" FIGURES FROM AYAZ ATA TO SANTA CLAUS

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ONLINE PRESENTATIONS

20.11.2025 / Hall-4, Session-1

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
10 ^{00} : 12 ^{00}		ZOOM PASSCODE: 123456

HEAD OF SESSION: Assist. Prof. Dr. Elizabeth Y. Coker-Farrell

AUTHORS	AFFILIATION	TOPIC TITLE
Aygun Tagiyeva	Head of the Department of Strategic Development, International Cooperation, and Project Management AZERBAIJAN	PROJECT MANAGEMENT FOR SUSTAINABILITY: STRATEGIC PLANNING AND EFFECTIVE USE OF RESOURCES
Pegah Ghorbanpour Elmira Azizi	Tabriz University IRAN	PRODUCTIVITY STRATEGIES FOR SMALL AND MEDIUM-SIZED ENTERPRISES IN EMERGING ECONOMIES: FROM POLICY DESIGN TO PERFORMANCE
Jungsuk Kim	Sejong University SOUTH KOREA	ENTREPRENEURSHIP AND ECONOMIC GROWTH: A CROSS-COUNTRY EMPIRICAL ANALYSIS
Dr. Ana-Cristina BÂLGĂR	Institute for World Economy, Romanian Academy ROMANIA	THE GERMAN MODEL UNDER PRESSURE: STRUCTURAL VULNERABILITIES AND THE RECONFIGURATION OF INDUSTRIAL POLICY
Assist. Prof. Dr. Elizabeth Y. Coker-Farrell	Concordia University CANADA	THERE IS A POSITIVE RELATIONSHIP BETWEEN EMPLOYEE MORALE AND ORGANIZATIONAL COMMITMENT, JOB PERFORMANCE, ORGANIZATIONAL CITIZENSHIP BEHAVIOR, AND RETENTION
Laurice OBEID Pr. Hassan-Henri AYOUB	Lebanese University LEBANON	A REASSESSMENT OF THE ENVIRONMENTAL KUZNETS CURVE: AN ECONOMETRIC ANALYSIS IN THE CONTEXT OF MENA COUNTRIES
Habibur Rahman	Khulna University BANGLADESH	EXPLORING THE SOCIAL STATUS OF THE HIJRA COMMUNITY: AN EVIDENCE-BASED STUDY
Octavio Alejandro Sánchez Ortiz Gloria Auristela Hernández Pérez	Juárez Autónoma de Tabasco University MEXICO	THE FAILURE OF THE MEXICAN DEVELOPMENT MODEL FOR PARTICIPATORY AND TRANSPARENT GOVERNANCE
Olga Berta Szabóné	Nyíregyháza University HUNGARY	ECONOMIC DIMENSIONS OF EQUAL OPPORTUNITIES: TH EROLE AND CHAALLANGE OF WOMEN IN THE LABOUR MARKET

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ONLINE PRESENTATIONS

20.11.2025 / Hall-5, Session-1

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
10 ^{00} : 12 ^{00}		ZOOM PASSCODE: 123456

HEAD OF SESSION: Moses Adeolu AGOI

AUTHORS	AFFILIATION	TOPIC TITLE
Benjamin Olumide BAMIDELE Moses Adeolu AGOI Samuel Olayiwola AJAGA Solomon Abraham UKPANAH	Lagos State University NIGERIA	AI-DRIVEN MUSIC COMPOSITION: EXPLORING DEEP LEARNING MODELS FOR CREATIVE SOUND GENERATION
Gyula Mester	Szeged University HUNGARY	2025 WORLD RANKING OF ARTIFICIAL INTELLIGENCE RESEARCHERS
Shah Tania Akter Sujana	Begum Rokeya University BANGLADESH	IMMUNE CELL TYPE CLASSIFICATION AND IDENTIFICATION OF CELL TYPE-SPECIFIC GENES USING MACHINE LEARNING IN SINGLE-CELL RNA-SEQ DATA WITH FUNCTIONAL ANALYSIS AND DRUG REPURPOSING
Shah Tania Akter Sujana	Begum Rokeya University BANGLADESH	APPLICATION OF BIOINFORMATIC TOOLS IN CELL TYPE CLASSIFICATION FOR SINGLE-CELL RNA-SEQ DATA
Md. Mahafuzur Rahman	Begum Rokeya University BANGLADESH	IDENTIFYING KEY INFLUENCERS OF PATIENT SATISFACTION USING AN EXPLAINABLE MACHINE LEARNING APPROACH
Yu Haonan	Kazakh National University KAZAKHSTAN	THE IMPACT OF ARTIFICIAL INTELLIGENCE ON NEWS CREDIBILITY: A CASE STUDY OF CHINESE NEWS PORTALS
Dr. S. Kalaiselvan Mr. T. Afsal Shaliq Ms. S. Kayalvizee Mr. M. Ajitesh Ms. V. Aathiraa	Rathinam Technical Campus INDIA	CHEMCYBER SECURITY: STRENGTHENING DIGITAL SAFETY IN MODERN CHEMICAL RESEARCH AND INDUSTRY

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ONLINE PRESENTATIONS

20.11.2025 / Hall-6, Session-1

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Prof. Dr. Mir-Hassan MOOSAVY

AUTHORS	AFFILIATION	TOPIC TITLE
Tabarek Abdulridh Haji Al-Farisee	Isra University PAKISTAN	TABA SPRAY MASK: A PROPOSED INNOVATIVE MOISTURIZING SOLUTION FOR ICHTHYOSIS PATIENTS
Prof. Dr. Mir-Hassan MOOSAVY	Tabriz University IRAN	ANTIBIOTIC-RESISTANT BACTERIA IN THE FOOD CHAIN: MOLECULAR DETECTION AND CONTROL STRATEGIES
Ahmad Tareq Hamrah Mohammad Hussain Hamrah Sossan Hamrah Toba Dahi Leusa Ozturk Ahmad Elias Dahi Ahmad Edris Hamrah Mohammad Hashem Hamrah Mohammad Hassan Hamrah	Dr. Mohammad Hashem Hamrah's Curative Clinic AFGHANISTAN Nagoya University JAPAN Charles Sturt University AUSTRALIA Bolu Abant Izzet Baysal University TÜRKİYE Fatma Hatun Hospital TÜRKİYE	PULMONARY HYPERTENSION AND ITS ASSOCIATED FACTORS IN NON-DIALYSIS-DEPENDENT CHRONIC KIDNEY DISEASE PATIENTS IN AFGHANISTAN
Rahmuddin khan M. Aamir Mirza Zeenat Iqbal	Department of Pharmaceutics INDIA	TARGETED NANODELIVERY OF A DPP-4 INHIBITOR AND A SERM: AN INNOVATIVE STRATEGY FOR EFFECTIVE PCOS TREATMENT
Gracy S Murugesan Kamaraj	SRM Institute of Science and Technology INDIA	REGENERATIVE APPROACH TO DEVELOPING A STEM CELL BASED ARTIFICIAL PANCREAS FOR TYPE 1-DIABETES
Nithyashree Murugesan Hemalatha Srinivasan	B.S.Abdur Rahman Crescent Institute of Science and Technology INDIA	BIOACTIVE COMPOUNDS FROM DICLIPTERA CUNEATA NEES TARGET DISEASE CAUSING PROTEINS
Mouassa Bochra	Chadli Benjdid University ALGERIA	COMPARATIVE HISTOLOGICAL ANALYSIS OF THE GONADAL STRUCTURE IN AQUACULTURE-RELEVANT SHRIMP SPECIES FROM ALGERIA (PENAEUS KERATHURUS)

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ONLINE PRESENTATIONS

20.11.2025 / Hall-1, Session-2

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Assoc. Prof. Dr. Mehmet EKİCİ

AUTHORS	AFFILIATION	TOPIC TITLE
Berna YILDIRIM Ayhan BİLİR	İstanbul Atlas University TÜRKİYE	GLEEVEC INDUCES CELL CYCLE ARREST AND REDUCES PROLIFERATION IN 3D ENDOMETRIAL CANCER SPHEROIDS
Bilgehan Ceren BASANÇELEBİ Assoc. Prof. Dr. Mehmet EKİCİ	Sivas Cumhuriyet University TÜRKİYE	APELIN AND MALE REPRODUCTIVE PHYSIOLOGY RESEARCH IN VETERINARY SCIENCES: A BIBLIOMETRIC ANALYSIS
Bilgehan Ceren BASANÇELEBİ Assoc. Prof. Dr. Mehmet EKİCİ	Sivas Cumhuriyet University TÜRKİYE	CHEMERIN AND REPRODUCTIVE PHYSIOLOGY RESEARCH IN VETERINARY SCIENCES: A BIBLIOMETRIC ANALYSIS
Samet SEMİZ	Ondokuz Mayıs University TÜRKİYE	POSSIBLE ASSOCIATION OF IMMUNOGENETIC POLYMORPHISMS WITH RECURRENT PREGNANCY LOSS
Assoc. Prof. Dr. Gülşah KÖK Res. Assist. Merve ERTUĞRUL	University of Health Sciences TÜRKİYE	EPIGENETICS AND BREASTFEEDING: THE PROGRAMMING EFFECTS OF BREAST MILK ON INFANT DEVELOPMENT
Assoc. Prof. Dr. Gülşah KÖK Lect. Hatice Nur ÖZGEN	University of Health Sciences TÜRKİYE Harran University TÜRKİYE	BREASTFEEDING SELF-EFFICACY IN ADOLESCENCE: THEORETICAL FOUNDATIONS AND LITERATURE REVIEW
Res. Assist. Esra Nur ERDOĞAN Prof. Dr. Gülten GÜVENÇ Assist. Prof. Dr. Burçin BEKTAŞ PARDES	Health Sciences University TÜRKİYE	LAUGHTER YOGA AS AN INNOVATIVE PRACTICE IN GYNECOLOGIC ONCOLOGY NURSING
Sedat BEHREM Sabri GÜL	Aksaray University TÜRKİYE Hatay Mustafa Kemal University TÜRKİYE	THE EFFECT OF BODY REGION AND AGE ON THE DIAMETER OF MEDULLATED AND NON-MEDULLATED FIBERS IN KARACABEY SHEEP
Sedat BEHREM Tahir KARAŞAHİN	Aksaray University TÜRKİYE	THE CURRENT STATUS OF SHEEP BREEDING IN THE CENTRAL ANATOLIA REGION

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ONLINE PRESENTATIONS

20.11.2025 / Hall-2, Session-2

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Prof. Dr. Erkan FİDAN

AUTHORS	AFFILIATION	TOPIC TITLE
Arc. Serdar CANPOLAT Arc. Pelin ÇETİN Assist. Prof. Dr. Miray Dizem YILMAZ	Düzce University TÜRKİYE	SPATIAL COMFORT ANALYSIS IN A BIM ENVIRONMENT: THE INTERACTION BETWEEN LIGHTING AND VISUAL QUALITY
Arc. Melih AKKAYA Prof. Dr. Alper BİDECİ Assist. Prof. Dr. Ünal SEVER	Düzce University TÜRKİYE Kırklareli University TÜRKİYE	BUILDING PHYSICS PROBLEMS IN HEALTHCARE BUILDINGS: BOLU CASE STUDY
Assoc. Prof. Dr. Serap ÜNAL	Süleyman Demirel University TÜRKİYE	FROM CERAMICS TO PORCELAIN: ALBARELLO'S JOURNEY IN THE HISTORY OF MEDICINE
Prof. Dr. Erkan FİDAN	Bilecik Seyh Edebali University TÜRKİYE	THE GLOBAL DEVELOPMENT OF ARCHAEOLOGY: FROM ANTIQUARIANISM TO DIGITAL ARCHAEOLOGY
Prof. Dr. Erkan FİDAN	Bilecik Seyh Edebali University TÜRKİYE	THE DEVELOPMENT OF ARCHAEOLOGY IN TURKEY: INSTITUTIONALIZATION, METHODOLOGICAL TRANSFORMATION, AND DIGITAL HERITAGE

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ONLINE PRESENTATIONS

20.11.2025 / Hall-3, Session-2

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Prof. Dr. Fatih GÜRBÜZ

AUTHORS	AFFILIATION	TOPIC TITLE
Sümeyra ŞİMŞEK Prof. Dr. Duygu Saniye ÖZTÜRK	Bolu Abant İzzet Baysal University TÜRKİYE	PRIMARY SCHOOL STUDENTS' VIEWS ON PHYSICAL ACTIVITIES AND GAMES VERSUS DIGITAL GAMES
Osman AYDIN Prof. Dr. Uğur YÜZGEÇ Assist. Prof. Dr. İrfan ÖKTEN	Bitlis Eren University TÜRKİYE	AR-MATH: AN AUGMENTED REALITY-BASED EDUCATIONAL GAME FOR ENHANCING MATHEMATICAL SKILLS IN CHILDREN
Prof. Dr. Fatih GÜRBÜZ Elif BATTAL	Bayburt University TÜRKİYE	CONTENT ANALYSIS OF RESEARCH ON THE GEMS PROGRAM IN EDUCATION
Prof. Dr. Fatih GÜRBÜZ Büşranur CAN	Bayburt University TÜRKİYE	THE EFFECT OF EDUCATIONAL E-GAMES USED IN SCIENCE CLASSES ON STUDENT ACHIEVEMENT, PERMANENCE, AND ATTITUDES TOWARDS THE COURSE
Prof. Dr. Mustafa TUNCAY SARITAŞ Mete Gazi TÜRKAY	Balıkesir University TÜRKİYE	AN EMERGING PARADIGM: EDUCATIONAL NEUROSCIENCE
Prof. Dr. Zeynep GÜNGÖRMÜŞ Assist. Prof. Dr. Burcu ÇAKI DÖNER Zeliha Nur BOZKURT	Gaziantep Islamic Science and Technology University TÜRKİYE	DATA COLLECTION METHODS AND TOOLS IN SCIENTIFIC RESEARCH
Prof. Dr. Zeynep GÜNGÖRMÜŞ Assist. Prof. Dr. Burcu ÇAKI DÖNER Melise BULUT Erdinç KARAKOÇ	Gaziantep Islamic Science and Technology University TÜRKİYE	QUALITATIVE RESEARCH METHODS IN NURSING: A THEORETICAL REVIEW
Lütfiyenur AKDOĞAN Assist. Prof. Dr. Didem SEMERCİ ARIKAN	Ordu University TÜRKİYE	AN EXAMINATION OF GRADUATE THESES ON PLAY THERAPY IN TURKEY

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ONLINE PRESENTATIONS

20.11.2025 / Hall-4, Session-2

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Habibur Rahman

AUTHORS	AFFILIATION	TOPIC TITLE
Nandhini B L. Nandhitha B. Reshma S. Dr.M.Meena	R.M.K. Engineering College INDIA	URBAN FARMING: THE FUTURE OF SUSTAINABLE FOOD PRODUCTION
S Nithyasree A B Nethrha P Pragna Dr.M.Meena	R.M.K. Engineering College INDIA	IMPACT OF AGRICULTURAL CHEMICALS ON SOIL FERTILITY
Md. Nazmul Hasan Arfin Nabiha Tasnim Ruhi	Sylhet Agricultural University BANGLADESH	EFFECT OF SEAWEED ENRICHED HUMIC ACID ON GROWTH AND YIELD OF BT. BRINJAL (SOLANUM MELONGENA L.)
S. M. Rejbanul Islam Md. Nazmul Hasan Arfin Abdullah Al Kafi Hridoy Chandra Das Jannatul Ferdousi	Sylhet Agricultural University BANGLADESH	EFFECTS OF ORGANIC MANURES AND CHEMICAL NPK FERTILIZERS ON RED AMARANTH (AMARANTHUS TRICOLOR L.) IN SANDY LOAM CONDITIONS
S. M. Rejbanul Islam Arpita Nag Dr. Dwipok Debnath Dr. Jannatul Ferdousi	Sylhet Agricultural University BANGLADESH	POSTHARVEST QUALITY AND SHELF LIFE ASSESSMENT OF SWEET PEPPER (Capsicum annuum L.) GENOTYPES UNDER ROOM TEMPERATURE
Masud Amran Sumel	Metropolitan University BANGLADESH	ENVIRONMENTAL CHANGES IN KULAURA: IMPACTS ON BIODIVERSITY, HUMAN WELL-BEING, AND SUSTAINABLE CONSERVATION PRACTICES
Habibur Rahman	Khulna University BANGLADESH	ADAPTIVE STRATEGIES AND LIVELIHOOD RESILIENCE IN THE COASTAL COMMUNITIES OF BANGLADESH
Sivanantha Vigneswaran.L Radha Krishnan.A Lokesh.P Vaka Archana Giridhar K S Abhinayan Mb	Rajiv Gandhi Institute of Veterinary Education and Research INDIA	SUSTAINABLE STRATEGIES FOR REDUCING AMMONIA EMISSIONS FROM POULTRY FARMS

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ONLINE PRESENTATIONS

20.11.2025 / Hall-5, Session-2

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Anisuzzaman

AUTHORS	AFFILIATION	TOPIC TITLE
Res. Mouheb Sboui Assist. Prof. Dr. Youssef O. Al-Ghamdi	Sfax University TUNUSIA Majmaah University SAUDI ARABIA	GREEN SYNTHESIS OF PLASMONIC AG-AGBR/TIO2 /CELLULOSE BIOCOMPOSITE WITH ENHANCED VISIBLE PHOTOCATALYTIC PERFORMANCE
Mourad Keddam Zahra Nait Abdellah B. Boumaali	University of Sciences and Technology Houari Boumediène ALGERIA Mouloud Mammeri University ALGERIA University of Sciences and Technology Houari Boumediène ALGERIA	BORONIZING KINETICS OF M2 STEEL USING THE TAYLOR EXPANSION MODEL
Fazal-ur- Rehman Shahid Adeel Shumaila Kiran Mehboob Afzal Abdul Mateen	Govt. College University PAKISTAN	DYEING OF CELLULOSIC FABRIC WITH TURQUOISE BLUE DYE
Abu Sayam Sadik Nur Uddin Ahamad	Shahjalal University of Science and Technology BANGLADESH	SYNTHESIS AND CHARACTERIZATION OF NANO-CELLULOSE PHOSPHATE AS A NOVEL BIOMATERIAL FOR BONE TISSUE ENGINEERING
Anisuzzaman	Uropean University BANGLADESH	SALT EFFECT ON NANOPORE SHAPE FOR SENSITIVITY IMPROVEMENT
Anisuzzaman	Uropean University BANGLADESH	IMPACT OF NANOPORE SHAPE AND ASYMMETRIC SALT SOLUTIONS ON BIOMOLECULE TRANSLOCATION: A SIMULATION INSIGHTS
Arbenita Hasani Manjola Kuliçi Alma Mehmeti Veronika Xhelili	Prishtina University KOSOVO	PHENOLICS OVER VITAMINS: A STATISTICAL ANALYSIS OF ANTIOXIDANT POTENTIAL IN 93 HONEYS OF VARYING BOTANICAL AND GEOGRAPHIC ORIGIN

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ONLINE PRESENTATIONS

20.11.2025 / Hall-6, Session-2

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Assoc. Prof. Dr. Iliichuk Liubomyra

AUTHORS	AFFILIATION	TOPIC TITLE
Douglas Yeboah Godfred Y. Koi-Akrofi Nurudeen Mohammed Hannah A. Tanye Awo E. Bempong Maame A. Boadiwaa	University of Professional Studies Accra GHANA	DATABASE MANAGEMENT SYSTEMS COURSE RELEVANCE TO INDUSTRY NEEDS: INSIGHTS FROM UNDERGRADUATE INFORMATION TECHNOLOGY STUDENTS IN A DEVELOPING COUNTRY
Radostina Vlaseva	Shumen University BULGARIA	THE HUMAN VOICE IN THE AGE OF AI: RECONSIDERING COMMUNICATION AND REFLECTION IN FUTURE EDUCATION
Dr. Riachi Mireille Dr. Husni Noha	Balamand University LEBANON	ARTIFICIAL INTELLIGENCE (AI) AND TEACHING LANGUAGE IN A LEBANESE SCHOOL CONTEXT – AN INSIGHT ON A FUTURE PLAN
Nasrin Shokrpour Laleh Khojasteh Saeed Reza Rassafiani	Shiraz University of Medical Sciences IRAN	INVESTIGATING THE RELATIONSHIP BETWEEN THE QUALITY OF VIRTUAL EDUCATION WITH LEARNING STYLE AND SELF-EFFICACY OF VIRTUAL GRADUATE STUDENTS IN SHIRAZ UNIVERSITY OF MEDICAL SCIENCES IN THE YEAR 2024
Assoc. Prof. Dr. Iliichuk Liubomyra	Vasyl Stefanyk Carpathian National University UKRAINE	MECHANISMS FOR ENSURING THE QUALITY OF HIGHER EDUCATION IN WARTIME
Dasia A. Singleton Julian D. Allagan Shanae N. Perry Gabrielle C. Morgan Essence A. Morgan	Technology Elizabeth City State University USA	MULTI-METHOD ANALYSIS OF MATHEMATICS PLACEMENT ASSESSMENTS: CLASSICAL, MACHINE LEARNING, AND CLUSTERING APPROACHES

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ONLINE PRESENTATIONS

20.11.2025 / Hall-1, Session-3

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
15 ^{00} : 17 ^{00}		ZOOM PASSCODE: 123456

HEAD OF SESSION: Assoc. Prof. Dr. Bülent BAYRAKTAR

AUTHORS	AFFILIATION	TOPIC TITLE
Sonnur CİVELEK Prof. Dr. Engin ŞAHİN	Bayburt University TÜRKİYE	INVESTIGATION OF THE ROLE OF GLUTEN CONSUMPTION IN CELIAC DISEASE
Sonnur CİVELEK Prof. Dr. Engin ŞAHİN	Bayburt University TÜRKİYE	NUTRITIONAL COMPLIANCE AND ITS IMPORTANCE TO MANDATORY DIETARY RESTRICTIONS IN DIALYSIS PATIENTS
Samet VERGİLİ Prof. Dr. Engin ŞAHİN Assoc. Prof. Dr. Bülent BAYRAKTAR	Bayburt University TÜRKİYE	INSULIN RESISTANCE IN THE MANAGEMENT OF DIABETES MELLITUS: STRATEGIES TO INCREASE INSULIN SENSITIVITY THROUGH MEDICAL NUTRITION THERAPY
Samet VERGİLİ Prof. Dr. Engin ŞAHİN	Bayburt University TÜRKİYE	THE IMPORTANCE OF FUNCTIONAL FOOD NUTRITION IN DISEASE MANAGEMENT
Beyzanur BAYHAN Prof. Dr. Engin ŞAHİN	Bayburt University TÜRKİYE	EXAMINING THE ROLE OF DIETARY THERAPY IN THE MANAGEMENT OF IRRITABLE BOWEL SYNDROME
Beyzanur BAYHAN Prof. Dr. Engin ŞAHİN	Bayburt University TÜRKİYE	INVESTIGATION OF THE RELATIONSHIP OF POLYCYCLIC AROMATIC HYDROCARBONS WITH NUTRITION AND THEIR EFFECTS ON HEALTH
Fadile ÇAKMAK Prof. Dr. Engin ŞAHİN	Bayburt University TÜRKİYE	INVESTIGATION OF THE EFFECTS OF LYCOPENE ON METABOLISM AND HEALTH
Fadile ÇAKMAK Prof. Dr. Engin ŞAHİN	Bayburt University TÜRKİYE	EXAMINING THE ROLE OF NUTRITION IN THE TREATMENT OF THYROID DISEASE

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ONLINE PRESENTATIONS

20.11.2025 / Hall-2, Session-3

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Assoc. Prof. Dr. Ramazan ERYILMAZ

AUTHORS	AFFILIATION	TOPIC TITLE
Assoc. Prof. Dr. Muhammed TUNAGÜR Assist. Prof. Dr. İhsan GÜZEL	Muş Alparslan University TÜRKİYE	AN EXAMINATION OF THE 2024 TURKISH LANGUAGE TEACHING PROGRAMME OF THE TURKISH CENTURY EDUCATION MODEL IN TERMS OF MEASUREMENT AND EVALUATION
Assoc. Prof. Dr. Muhammed TUNAGÜR Assoc. Prof. Dr. Teymur EROL	Muş Alparslan University TÜRKİYE	A STUDY ON LITERACY, SKILLS, AND INTERDISCIPLINARY RELATIONSHIPS IN THE 2024 TURKISH LANGUAGE TEACHING PROGRAM
Assoc. Prof. Dr. Ramazan ERYILMAZ	Alanya Alaaddin Keykubat University TÜRKİYE	INSTRUCTORS' VIEWS ON THE ACADEMIC TURKISH NEEDS OF INTERNATIONAL STUDENTS
Assoc. Prof. Dr. Ramazan ERYILMAZ	Alanya Alaaddin Keykubat University TÜRKİYE	THE EFFECTS OF SUPPORT ON ACCULTURATION AND ACADEMIC ACHIEVEMENT VARIABLES AMONG INTERNATIONAL STUDENTS IN TÜRKIYE
Assist. Prof. Dr. Özde DEREBOYLULAR BAYRAKTAR Dr. Sıla TATLIDİL ONGUN	Near East University TURKISH REPUBLIC OF NORTHERN CYPRUS	THE RIGHTS OF THE ACCUSED UNDER THE ROME STATUTE AND THE TURKISH CONSTITUTION: A COMPARATIVE ANALYSIS FROM THE PERSPECTIVE OF FAIR TRIAL
Assoc. Prof. Dr. İbrahim GÜL	Bolu Abant İzzet Baysal University TÜRKİYE	THE PREPONDERANCE OF PROBABILITY APPROACH TO PROVING CAUSATION
Res. Assist. Dr. Emine HATİP	Ankara University TÜRKİYE	ELEFTHERIOS VENIZELOS' MISSION TO LAUSANNE
Celal NAZLI Assoc. Prof. Dr. Gülşah SEZEN VEKLİ	Independent Researcher Yozgat TÜRKİYE Yozgat Bozok University TÜRKİYE	EFFECTS OF THE LABORATORY REPORT BASED ON SCIENCE WRITING HEURISTIC APPROACH ON THE SCIENCE PROCESS SKILLS AND QUESTIONING SKILLS

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ONLINE PRESENTATIONS

20.11.2025 / Hall-3, Session-3

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
15 ^{00} : 17 ^{00}		ZOOM PASSCODE: 123456

HEAD OF SESSION: Dr. Muhsin Koray KILIÇ

AUTHORS	AFFILIATION	TOPIC TITLE
Dr. Muhsin Koray KILIÇ	Erenköy Mental Health and Neurological Diseases Training and Research Hospital TÜRKİYE	MODAFINIL-INDUCED MANIC EPISODE
Dr. Muhsin Koray KILIÇ	Erenköy Mental Health and Neurological Diseases Training and Research Hospital TÜRKİYE	MANIC EPISODE TRIGGERED BY MEDROXYPROGESTERONE ACETATE IN A PATIENT WITH BIPOLAR AFFECTIVE DISORDER
Aytac KAZIMLI Assist. Prof. Dr. Mustafa Kaan ÖZKAN	Altınbaş University TÜRKİYE	EXAMINING THE RELATIONSHIP BETWEEN ATTACHMENT STYLES AND LEVELS OF LONELINESS IN UNIVERSITY STUDENTS
Hakan YİĞİT Assist. Prof. Dr. Tahsin Eren SAYAR	Yalova University TÜRKİYE	DEPRIVATION AND ADDICTION IN SOCIAL MEDIA APPLICATIONS
Assoc. Prof. Dr. Cemile Zehra KÖROĞLU Şeyma SAKİ	Uşak University TÜRKİYE Sakarya University TÜRKİYE	THE EFFECT OF THE DIGITALIZATION PROCESS ON VIRTUAL ADDICTION AND FAMILY RELATIONSHIPS
Dr. Muhsin Koray KILIÇ	Erenköy Mental Health and Neurological Diseases Training and Research Hospital TÜRKİYE	MANIC EPISODE INDUCED BY PSEUDOEPHEDRINE USE IN A PATIENT WITH BIPOLAR DISORDER
Dr. Muhsin Koray KILIÇ	Erenköy Mental Health and Neurological Diseases Training and Research Hospital TÜRKİYE	BURNING MOUTH SYNDROME

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ONLINE PRESENTATIONS

20.11.2025 / Hall-4, Session-3

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
15 ^{00} : 17 ^{00}		ZOOM PASSCODE: 123456

HEAD OF SESSION: Ananda Majumdar

AUTHORS	AFFILIATION	TOPIC TITLE
Nikita Singh Neha Sah	Lovely Professional University INDIA	SUSTAINABLE DIGITAL SAMPLING IN FASHION WITH CLO3D VIRTUAL PROTOTYPES
Ananda Majumdar	Harvard University USA	REASSESSING OBJECTHOOD: AGENCY AND IDEOLOGY IN MEDIEVAL LITERATURE
Cristina GUDIN	Bucharest University ROMANIA	REFLECTION OF THE PEASANT PROBLEM IN ROMANIAN PAINTING FROM THE SECOND HALF OF THE 19TH CENTURY TO THE BEGINNING OF THE 20TH CENTURY
Prof. Gianluca Pasquale Todisco	Salerno University ITALY	ART INCLUSION METHODOLOGY
Zakia HAMMOU Zakia GUEZZEN Zouaoui SEREIR Yamna HAMMOU	University of Science and Technology of Oran ALGERIA	REINFORCEMENT SHAPES AND DISTRIBUTION INFLUENCE ON FGM RESONANCE

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ONLINE PRESENTATIONS

20.11.2025 / Hall-5, Session-3

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
15 ^{00} : 17 ^{00}		ZOOM PASSCODE: 123456

HEAD OF SESSION: Sulaiman Mustafa Khazaal Al-Timmimi

AUTHORS	AFFILIATION	TOPIC TITLE
Sulaiman Mustafa Khazaal Al-Timmimi Szávai Szabolcs	Miskolc University HUNGARY	IMPROVE THE COEFFICIENT OF FRICTION OF THE HYBRID IRON MATRIX COMPOSITE BY ADDING GRAPHITE NANOPARTICLES
Mahendrakar Hemanth Kumar Pathangi Eswanth Ramireddy Sushmitha	G. Pulla Reddy Engineering College INDIA	DESIGN OF ABUTMENTS BY CSI BRIDGE SOFTWARE
Wahid OUDAD Noureddine DJEBBAR Mohamed BELHAMIANI Wahiba Nesrine BOUZITOUNA	University of Ain Témouchent Belhadj Bouchaib ALGERIA	FRACTURE BEHAVIOUR OF A CIRCUMFERENTIAL CRACK IN AN API 5L X60 PIPELINE REPAIRED WITH A COMPOSITE PATCH
Zhumayev Zh. Sarsenbayev B.S. Malov K.V.	Yessenov University KAZAKHSTAN	ENSURING ELECTROMAGNETIC COMPATIBILITY AND POWER SUPPLY RELIABILITY OF THE GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) IN EMERGENCY SITUATIONS
Wissem BELKHEIR Wafa TEBBOUNE Fatima HADJADJ Zahra BOUNOUARA	University of Sciences and Technology of Oran-Mohamed BOUDIAF ALGERIA	EVALUATING THE IMPACT OF SIGNAL TIMING AND TRAFFIC COMPOSITION ON SHARED LANE CAPACITY AT URBAN INTERSECTIONS
HADJADJ FATIMA ZOHRA TEBBOUNE WAFA BELKHEIR WISSEM BOUNOUARA ZAHRA LAREDJ NADIA MALIKI MUSTAPHA	Mohamed Boudiaf University of Science and Technology ALGERIA	IMPROVEMENT OF THE COMPRESSIBILITY OF SOIL IN ALGERIA'S SEBKHA BY ELECTROKINETIC TREATMENT
SAIDA ES-SANHAJY Pr. Mourad Boughrara	Moulay Ismail University MOROCCO	STUDY OF THE THERMOELECTRIC PERFORMANCE OF TWO-DIMENSIONAL JANUS MATERIALS
TEBBOUNE Wafa Bounouara Zahra HADJADJ Fatima Zohra BELKHEIR Wissem	University of Sciences and Technology Mohamed Boudiaf ALGERIA	THERMAL BUCKLING BEHAVIOR OF FUNCTIONALLY GRADED PLATES USING A HSDT THEORY
Kevin Omolara Chineke Emmanuel Uzoma	Air Force Institute of Technology USA	INDEX PROPERTIES OF WEAK LATERITIC SOIL STABILIZED WITH LIMESTONE POWDER AND SAND

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ONLINE PRESENTATIONS

20.11.2025 / Hall-6, Session-3

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
15 ^{00} : 17 ^{00}		ZOOM PASSCODE: 123456

HEAD OF SESSION: Bounouara Zohra

AUTHORS	AFFILIATION	TOPIC TITLE
Yahya Boubekri Siham Slassi Mohammed Aarjane Amina Amine	Moulay Ismail University MOROCCO	FROM SALICYLIC ACID TO FUNCTIONAL N-ACYLHYDRAZONES: COST-EFFECTIVE SYNTHESIS AND CORROSION INHIBITION POTENTIAL
Ashika J Ashok P R Biju	Mahatma Gandhi University INDIA	LUMINESCENCE AND STRUCTURAL STUDIES OF NOVEL DY3+ DOPED TELLUROBOROFLUORATE GLASSES
Gayathri P B P R Biju	Mahatma Gandhi University INDIA	STRUCTURAL AND LUMINESCENT STUDIES OF YELLOW EMITTING DY DOPED CA2LI2BI (1-X) V3O12 PHOSPHORS FOR DISPLAY DEVICES
Saleh Mahmud Yusuf Mubarak Muhammad Saleh Salga	Umaru Musa Yar'adua University NIGERIA	SYNTHESIS AND CHARACTERIZATION OF 3-((1-CARBOXY-2-PHENYLETHYL) IMINO)-2, 2-DIMETHYL-3-OXOPROPANOATE AND ITS DIVALENT TRANSITION METAL COMPLEXES OF COBALT, NICKEL AND COPPER
OMAR BOUKRA ALI BOUKRA SANAA SAOIABI LARBI EL HAMMARI	Mohammed V University MOROCCO	HYDROXYAPATITE PREPARED FROM BOVINE BONE AS AN EFFICIENT ADSORBENT FOR METHYLENE BLUE REMOVAL FROM AQUEOUS MEDIA
Fazal-ur- Rehman Shahid Adeel Muhammad Aamir	Govt. College University PAKISTAN	DYEING OF CELLULOSIC FABRIC WITH TURQUOISE BLUE DYE
Nguyen Thi Hong Phuc	University of Architecture Hochiminh VIETNAM	BIOPHILIC AND DIGITAL FUSION: REDEFINING WELLNESS RESORT DESIGN IN THE POST-PANDEMIC ERA
Khair Tariq Nevers Clément	Mohammed First University MOROCCO Sherbrooke University CANADA	EFFECT OF TREE CONFIGURATION ON AIRFLOW AND THERMAL BEHAVIOR IN AN URBAN STREET CANYON: A CFD INVESTIGATION USING URBAN MICRO CLIMATE FOAM
Bounouara Zohra	University of Science and Technology of Oran ALGERIA	FEATURES OF MASCARA SOIL FOR BARRIER CONFINEMENT

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ONLINE PRESENTATIONS

21.11.2025 / Hall-1, Session-1

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
10 ^{00} : 12 ^{00}		ZOOM PASSCODE: 123456

HEAD OF SESSION: Prof. Dr. Selin ŞAHİN

AUTHORS	AFFILIATION	TOPIC TITLE
Cansel KOCAMAN Seda HAZER YAŞAR Sema SAMATYA YILMAZ	ILKA Plastic Packaging Food Industry and Trade Ltd., Kocaeli TÜRKİYE Kocaeli University TÜRKİYE ILKA Plastic Packaging Food Industry and Trade Ltd., Kocaeli TÜRKİYE Kocaeli University TÜRKİYE Kocaeli University TÜRKİYE	INVESTIGATION OF THE EFFECTS OF DIFFERENT PLASTICIZERS ON THE PROPERTIES OF PVA-BASED PACKAGING FILMS
Anıl Mert KUL Res. Assist. Burcu ACAR DEMİRCİ Prof. Dr. Mehmet ENGİN	Ege University TÜRKİYE	BREAST CANCER DETECTION ON DYNAMIC INFRARED THERMAL IMAGES USING VESSEL ENHANCEMENT BASED PREPROCESSING AND TRANSFER LEARNING
Ece TÜLÜMEN Melisa SAKAROĞLU Res. Assist. Burcu ACAR DEMİRCİ Prof. Dr. Mehmet ENGİN	Ege University TÜRKİYE	THE EFFECT OF PREPROCESSING STEPS ON CLASSIFICATION PERFORMANCE IN MAMMOGRAM IMAGES
Sevcan ÖZKAN Prof. Dr. Gülbahtiyar DEMİREL	Sivas Cumhuriyet University TÜRKİYE	MAPPING GLOBAL TRENDS AND HIGHLIGHTS OF RESEARCH ON ADVERSE EVENTS WITH IMMUNOTHERAPY IN CANCER PATIENTS: A BIBLIOMETRIC ANALYSIS STUDY
Sevcan ÖZKAN Prof. Dr. Gülbahtiyar DEMİREL	Sivas Cumhuriyet University TÜRKİYE	A CURRENT APPLICATION IN CANCER TREATMENT: IMMUNOTHERAPIES
Prof. Dr. Selin ŞAHİN Assoc. Prof. Dr. Ebru KURTULBAŞ Dr. Oana CADAR	Istanbul University-Cerrahpaşa TÜRKİYE Research Institute for Analytical Instrumentation Subsidiary ROMANIA	ENCAPSULATION OF AMOXICILLIN INTO THERMALLY TREATED CLINOPTILOLITE-BASED ZEOLITE-ALGINATE MICROPARTICLES WITH IONIC GELATION
Prof. Dr. Selin ŞAHİN Dr. İrem TOPRAKÇI Dr. Oana CADAR	Istanbul University-Cerrahpaşa TÜRKİYE Research Institute for Analytical Instrumentation Subsidiary ROMANIA	DESIGN AND OPTIMIZATION OF DOXYCYCLINE-LOADED NATURAL ZEOLITE-ALGINATE HYBRID MICROPARTICLES
Seher BALCI ULUÇAK Ebru ERDOGAN Hanife GÜLEN TOM	Belgin Mineral Oils Inc., R&D Center, Kocaeli TÜRKİYE	COMPARATIVE ASSESSMENT OF DIFFERENT TYPES OF DEFOAMERS IN GROUP I–II-III BASE OILS

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ONLINE PRESENTATIONS

21.11.2025 / Hall-2, Session-1

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
$10^{00} : 12^{00}$		ZOOM PASSCODE: 123456

HEAD OF SESSION: Samet KUŞKIRAN

AUTHORS	AFFILIATION	TOPIC TITLE
Dr. İrem TOPRAKÇI	Istanbul University-Cerrahpaşa TÜRKİYE	RECOVERY OF HIGH-VALUE BIOACTIVE COMPOUNDS FROM OLEASTER LEAVES VIA AGITATED SOLVENT EXTRACTION: A CHEMOMETRIC AND MULTI-PARAMETER OPTIMIZATION STUDY
Dr. İrem TOPRAKÇI Prof. Dr. Selin ŞAHİN	Istanbul University-Cerrahpaşa TÜRKİYE	MODELING AND OPTIMIZATION OF PHENOLIC-RICH QUINCE LEAF EXTRACT THROUGH HYDROALCOHOLIC EXTRACTION
Ahmet KELLECİ Prof. Dr. Kerem TAŞTAN	Gazi University TÜRKİYE	NUMERICAL INVESTIGATION ON THE EFFECT OF WEIR HEIGHT ON SEDIMENT REMOVAL EFFICIENCY IN VORTEX-TYPE SEDIMENTATION BASINS
Edanur Meral CENGİZ Assoc. Prof. Dr. Birgül BENLİ	İstanbul Technical University TÜRKİYE	SUSTAINABLE LEACHING STRATEGIES FOR BEYLİKOVA RARE EARTH ORE: COMPARISON OF MINERAL ACIDS AND DEEP EUTECTIC SOLVENTS
Can EKİNCİ Mustafa Eren TAŞKINGÜL Dr. Atike KÖKEN Assoc. Prof. Dr. Fatma Nur PARIN	Bursa Technical University TÜRKİYE	SUSTAINABLE PLA/FISH SCALE BIOCOMPOSITES WITH VIA STEREOLITHOGRAPHY (SLA)
Assoc. Prof. Dr. Emine AYTAR Assoc. Prof. Dr. Murat Efgan KİBAR	Harran University TÜRKİYE Kocaeli University TÜRKİYE	BORON-DOPED NANOTUBE TiO_2 AS AN EFFECTIVE CATALYST FOR CO_2 CONVERSION IN AN ATMOSPHERIC AMBIENT
Assoc. Prof. Dr. Emine AYTAR Assoc. Prof. Dr. Hatice Gamze SOĞUKÖMEROĞULLARI	Harran University TÜRKİYE Gaziantep University TÜRKİYE	SNS-LIGANDED RHODIUM (I) COMPLEX AS AN EFFICIENT CATALYST FOR CO_2 FIXATION IN BOTH ATMOSPHERIC AND REACTOR ENVORIMENT

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ONLINE PRESENTATIONS

21.11.2025 / Hall-3, Session-1

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Assoc. Prof. Dr. Ahmet ÖZCAN

AUTHORS	AFFILIATION	TOPIC TITLE
Assoc. Prof. Dr. Ahmet ÖZCAN	Adana Alparslan Türkeş Science and Technology University TÜRKİYE	CRITICAL ANALYSIS OF IFRS VALUATION TECHNIQUES: IMPACTS AND CHALLENGES
Assist. Prof. Dr. Mehmet Fatih KANOĞLU Assist. Prof. Dr. Hasan Saltuk DURAK	Yozgat Bozok University TÜRKİYE Düzce University TÜRKİYE	THE EFFECTS OF DIGITAL FATIGUE ON THE JOB PERFORMANCE OF ACCOUNTING PROFESSIONALS
Assist. Prof. Dr. Hasan Saltuk DURAK Assist. Prof. Dr. Mehmet Fatih KANOĞLU	Düzce University TÜRKİYE Yozgat Bozok University TÜRKİYE	CORPORATE CULTURE OF SILENCE: MECHANISMS THAT SILENCE EMPLOYEES' VOICES
Onur Kan ÖDEŞ Assoc. Prof. Dr. Didem RODOPLU ŞAHİN	Kocaeli University TÜRKİYE	INTEGRATED SUSTAINABILITY GOVERNANCE IN GROUND HANDLING: ÇELEBİ GROUND HANDLING TURKEY
Mesut ASLAN Muhammet Naif BARUT	Bingöl University TÜRKİYE Independent Researcher Bingöl TÜRKİYE	ANALYSIS OF MARKET DYNAMICS IN THE BORSA SME INDUSTRY INDEX: THE RELATIONSHIP BETWEEN PRICE, TRADING VOLUME, AND VOLATILITY

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ONLINE PRESENTATIONS

21.11.2025 / Hall-4, Session-1

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
10 ^{00} : 12 ^{00}		ZOOM PASSCODE: 123456

HEAD OF SESSION: Saira Malik

AUTHORS	AFFILIATION	TOPIC TITLE
Sajeda Sultana Tanwi Dey Md. Sakhawat Hossain	Sylhet Agricultural University BANGLADESH	EFFICACY OF BLACK SOLDIER FLY LASRVAE OIL AS AN ALTER SOURCE OF LIPID ON GROWTH AND HEALTH PERFORMANCE OF STINGING CATFISH, HETEROPNEUSTES FOSSILIS
Touhidul Hoque Shuvo Cao Zhengliang	Shanghai Ocean University CHINA	SYNERGISTIC EVALUATION OF AN AQUATIC HABITAT EMPLOYING BIO-ACOUSTIC SURVEILLANCE AND PHYSICOCHEMICAL PROFILING
EL-BAGGAR Imane LATIQUE Salma BAHHOU Jamila	Sidi Mohamed Ben Abdellah University MOROCCO	THE GROWTH POTENTIAL OF THREE FRESHWATER MICROALGAE STRAINS FROM THE FES-MEKNES REGION OF MOROCCO
Jannatul Ferdos Jolekha Khanam	Hamdard University BANGLADESH	REMOTE SENSING-BASED ASSESSMENT OF URBANIZATION IMPACTS ON URBAN INTERCEPTION AND RUNOFF DYNAMICS IN CHATTOGRAM UNDER CLIMATE CHANGE
Saira Malik	Education University PAKISTAN	MORPHO-ANATOMICAL, PHYSIOLOGICAL AND BIOCHEMICAL RESPONSES OF WHEAT (TRITICUM AESTIVUM L.) VARIETIES TO DROUGHT STRESS, REWATERING, AND EXOGENOUSLY APPLICATION OF COPPER OXIDE NANOPARTICLES
Mahendrakar Hemanth Kumar Pathangi Eswanth Dr. R. Sushmitha	G. Pulla Reddy Engineering College INDIA	STRENGTH PROPERTIES OF REGUR SOIL BY WOOD ASH AND RICE HUSK ASH
Laila Amjlef Hamid Essabir	Ibn Zohr University MOROCCO	EXPERIMENTAL STUDY ON THE MECHANICAL PROPERTIES OF BIO-CONCRETE CONTAINING NATURAL SHELLS AS COARSE AGGREGATE SUBSTITUTE
Mohamed Darouiche Abderrahman Aajmi Mohamed Rhaya Brahim Ennasraoui Said Alahiane Amane Jada Abdelaziz Ait Addi Hassan Ouachtak	Ibn Zohr University MOROCCO Haute Alsace University FRANCE	NEXT GENERATION MOF-BASED SYSTEMS FOR CIPROFLOXACIN REMOVAL AND EMERGING WATER CONTAMINANT TREATMENT

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ONLINE PRESENTATIONS

21.11.2025 / Hall-5, Session-1

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
10 ^{00} : 12 ^{00}		ZOOM PASSCODE: 123456

HEAD OF SESSION: Dr. RAHMOUNI Hanane

AUTHORS	AFFILIATION	TOPIC TITLE
P. Ofunama T.O Suoware	Federal Polytechnic NIGERIA	THE FUTURE OF TVET EDUCATION: A REVIEW ON CURRICULUM ENRICHMENT AS A STRATEGY FOR ADDRESSING SKILLS GAP IN NIGERIA
Anastasiya Grits Mariya Grigorovich Ekaterina Kaplinskaya	High School #21, Baranovichi, BELARUS	COMPARATIVE ANALYSIS OF THE EFFECTIVENESS OF ENVIRONMENTAL AWARENESS FORMATION AMONG SCHOOLCHILDREN IN BELARUS AND THE UK THROUGH DIGITAL EDUCATIONAL RESOURCES
Dr. RAHMOUNI Hanane	University of Oran 2 Mohamed Ben Ahmed ALGERIA	ONE OF THE PERFORMANCE INDICATORS: THE REWARD FOR EMPLOYEE EFFORT WITHIN AN ESTABLISHMENT
Md. Mostafizur Rahman Dr. Ripon Kumar Mondal	Sher-e-Bangla Agricultural University BANGLADESH	EXAMINING SOCIOECONOMIC AND FARM-SPECIFIC FACTORS INFLUENCING THE ADOPTION OF ARTIFICIAL INSEMINATION TECHNOLOGY IN DAIRY FARMING: A CASE STUDY FROM BRAHMANBARIA DISTRICT, BANGLADESH
Ibrahim Ndama Ismail Dr. A. Dauda Prof. Mukaila Adebisi Ijaiya Dr. A. Ochepa Kamar Ismail Shittu	Federal University of Technology Minna NIGERIA	MENTORSHIP AS A CATALYST FOR VENTURE CREATION: EVIDENCE FROM MASONRY ARTISANS IN MINNA METROPOLIS
Huma Ikram Shahla Perveen Darakhshan J. Haleem	Karachi University PAKISTAN	HOW TRYPTOPHAN CAN BOTH HELP AND HINDER MEMORY
Mahmoud Afrouz Narjes Asgari Vartooni	Isfahan University IRAN	DEVALUED LABOR IN THE AGE OF AUTOMATION: ECONOMIC PRESSURES ON HUMAN TRANSLATORS IN THE ERA OF GENERATIVE AI
Assoc. Prof. Dr. Mahmoud Afrouz Fatemeh Aghakhani Chegeni	Isfahan University IRAN	POST-EDITING AS THE NEW TRANSLATION PARADIGM IN AI ERA: PRODUCTIVITY, QUALITY, AND ETHICS
Dr. Duong To Quoc Thai Thai Tri Hai	Dong Thap University VIETNAM	THE REFUGEE MOVEMENT (1862 – 1874) IN VIETNAM AND PROMINENT FIGURES OF THE MOVEMENT

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ONLINE PRESENTATIONS

21.11.2025 / Hall-6, Session-1

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
10 ^{00} : 12 ^{00}		ZOOM PASSCODE: 123456

HEAD OF SESSION: Dr. Tamilselvi

AUTHORS	AFFILIATION	TOPIC TITLE
Dr. Tamilselvi	Sathyabhama Institute of Science and Technology INDIA	CONFIDENTIAL AND HOMOMORPHIC TECHNIQUES FOR SECURE CLOUD DATA PROCESSING
BAMAAROUF Rihab OUABI Hmad ADIB Youssef SEBIHI Rajaa	Mohammed V University MOROCCO Al Azhar Oncology MOROCCO	QUALITY ASSURANCE OF RADIOTHERAPY TREATMENT PLANS USING LOG AND DICOM FILES WITH PYTHON AND GAMMA INDEX
Md. Abdullah Al Rahat M. Zahid Hasan Md. Jannat Biswas Md. Mehedi Hasan Md. Murad Hossain	Gopalganj Science and Technology University BANGLADESH	MODELING CHILD MALNUTRITION USING ADVANCED STATISTICAL METHODS: ANALYZING THE DETERMINANTS OF STUNTING, UNDERWEIGHT, AND WASTING
Most. Jannatul Fardos Asha Md. Aminur Rahman Md. Ashraful Islam Khan	Rajshahi University BANGLADESH	SPATIAL MODELING TO REVEAL DIABETES HETEROGENEITY IN BANGLADESHI WOMEN: EVIDENCE FROM BDHS-2022 DATA
A Jayasree K. Yogapriya Sivasankari Dr. S. Selvam	Nadar Mahajana Sangam S. Vellaichamy Nadar College INDIA	CLOUD GAMING VS TRADITIONAL CONSOLES: THE FUTURE OF INTERACTIVE ENTERTAINMENT
Nivetha S Nivetha A Monika Sai K Dr.M.Meena	R.M.K. Engineering College INDIA	QUANTUM TECHNOLOGY IN MODERN COMPUTING AND COMMUNICATION
N.G. Kalyani Reddy Peddada Jagadeeswara rao Dr. Victor Babu Neela	G Pulla Reddy Engineering College INDIA Andhra University INDIA	ARTIFICIAL INTELLIGENCE IN DEFENCE: TRANSFORMING MODERN WARFARE AND SECURITY SYSTEMS

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ONLINE PRESENTATIONS

21.11.2025 / Hall-1, Session-2

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
$12^{30} : 14^{30}$		ZOOM PASSCODE: 123456

HEAD OF SESSION: Assoc. Porf. Dr. Samet MALDAR

AUTHORS	AFFILIATION	TOPIC TITLE
Ayşe OKUTAN Prof. Dr. Ali Fırat ÇABALAR	Gaziantep University TÜRKİYE	INVESTIGATION OF STRESS FLUCTUATIONS IN GRANULAR MATERIAL
Muharrem KEYFOĞLU Ayberk Salim MAYIL Ergin KAPLAN	Haier Europe, Cooking Research and Development, Eskisehir TÜRKİYE	NUMERICAL AND EXPERIMENTAL EVALUATION OF EPS PACKAGING DESIGN FOR INDUCTION HOBS
Ayberk Salim MAYIL Muharrem KEYFOĞLU Ergin KAPLAN Ali Fehmi ALBAYRAK	Haier Europe, Cooking Research and Development, Eskisehir TÜRKİYE	EXPERIMENTAL INVESTIGATION OF AIRFLOW PERFORMANCE OF AXIAL AND RADIAL FANS WITH DIFFERENT HEATSINK GEOMETRIES FOR INDUCTION COOKTOPS
Hatice Bilge ALGIN Lect. Buğra DAĞCI Assoc. Prof. Dr. Murat KÖSEOĞLU	İnönü University TÜRKİYE Burdur Mehmet Akif Ersoy University TÜRKİYE İnönü University TÜRKİYE	FORECASTING ELECTRIC VEHICLE CHARGING DEMAND USING TIME SERIES AND MACHINE LEARNING METHODS
Birsen AÇIKEL	Eskisehir Technical University TÜRKİYE	DISRUPTIONS IN THE SKY: THE IMPACT OF EXTRAORDINARY EVENTS ON AIR TRAFFIC OPERATIONS AND SAFETY
Funda KAVŞUT Assoc. Porf. Dr. Samet MALDAR	Aksaray University TÜRKİYE	A NEW KIRK-TYPE ITERATION METHOD AND SOME FIXED POINT THEOREMS
Ali Sercan KARAKAŞ Prof. Dr. Nuri Murat YAĞMURLU Prof. Dr. Selçuk KUTLUAY	İnönü University TÜRKİYE	STUDY ON THE SEPTIC HERMITE COLLOCATION METHOD FOR THE EQUAL-WIDTH WAVE EQUATION
Ömer ÖZKAN	SOCAR TÜRKİYE	QUALITY MANAGEMENT SYSTEMS AS ENABLERS OF DIGITAL TRANSFORMATION: A CONCEPTUAL FRAMEWORK FOR SUSTAINABLE ORGANIZATIONAL EXCELLENCE

All participants must join the conference 10 minutes before the session time.
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ONLINE PRESENTATIONS

21.11.2025 / Hall-2, Session-2

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
$12^{30} : 14^{30}$		ZOOM PASSCODE: 123456

HEAD OF SESSION: Prof. Dr. Atılgan ATILGAN

AUTHORS	AFFILIATION	TOPIC TITLE
Res. Assist. Elif Şeyda KESİK Prof. Dr. Nilüfer YAZICI	Isparta University of Applied Sciences TÜRKİYE	THE EFFECTS OF CLIMATE CHANGE ON FLOODS: AN ASSESSMENT OF THE LAST 15 YEARS IN TÜRKİYE
Çiçek Nur CEREN Reyyan KOLCU Sevinç YEŞİLYURT	Tekirdağ Namık Kemal University TÜRKİYE	PESTICIDE TOXICITY AND PHYTOREMEDIATION
Hazal BELLI Omer OZAK Assoc. Prof. Dr. Caner YERLI	Van Yüzüncü Yıl University TÜRKİYE	BIOCHAR AND NANOSILICIUM COMBINATION IN IRRIGATION WATER SALINITY
Hazal BELLI Can Berk GUL Assoc. Prof. Dr. Caner YERLI	Van Yüzüncü Yıl University TÜRKİYE	PHYSICAL PROPERTIES OF CAPSICUM ANNUUM IN THE INTERACTION OF DIFFERENT RATES OF BIOCHAR + NANO FERTILIZER IN VARYING LEVELS OF IRRIGATION TREATMENTS
Ali Cemal TANRIKULU Assist. Prof. Dr. Birgül BENLİ	Istanbul Technical University TÜRKİYE	SUSTAINABLE MINERAL PROCESSING STRATEGIES FOR ENVIRONMENTALLY FRIENDLY MINING
Lect. Leyla AKBULUT Prof. Dr. Atılgan ATILGAN	Alanya Alaaddin Keykubat University TÜRKİYE	LIFE CYCLE ASSESSMENT OF AGRICULTURAL WASTES FOR DETERMINING CARBON AND WATER FOOTPRINTS
Prof. Dr. Atılgan ATILGAN Lect. Leyla AKBULUT	Alanya Alaaddin Keykubat University TÜRKİYE	MANAGEMENT OF AGRICULTURAL WASTES IN FARMS: ENERGY RECOVERY AND POTENTIAL ENVIRONMENTAL IMPACTS
Okan KURTULDU	Nestle Türkiye Food Industry Inc. Bursa TÜRKİYE	DEVELOPMENT OF A WHITE CHOCOLATE PRODUCT WITH HIGH PISTACHIO CONTENT: THE DAMAK EZME PROJECT

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21.11.2025 / Hall-3, Session-2

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
$12^{30} : 14^{30}$		ZOOM PASSCODE: 123456

HEAD OF SESSION: Md. Selim Ali

AUTHORS	AFFILIATION	TOPIC TITLE
Md. Selim Ali Abtahi Islam Tariq	Rajshahi University BANGLADESH	MICROBIAL IDENTIFICATION AND BIOCHEMICAL PROFILING OF PATHOGENIC BACTERIA FROM TABLE EGG SURFACE WASHES
Prathamesh D. Salunkhe Sanket N. Kumbhar Venkat B. Battalwar	Bharati Vidyapeeth College INDIA	EXPLORING CELLULOSE RECOVERY FROM CAULIFLOWER DISCARDS
Fedwa BEGHDADI El-Hadj DRICHE	Laboratory of Molecular Biology, Genomics and Bioinformatics (LBMGB) ALGERIA Hassiba Benbouali University ALGERIA	EXPLORING ACTINOBACTERIA FROM ALGERIAN DESERT SOILS FOR THEIR ANTIMICROBIAL ACTIVITY AGAINST PHYTOPATHOGENIC MICROORGANISMS
AHMAD I.A. ISMAIL H Ebrah AA	Bauchi State University NIGERIA	PREVALENCE OF HAEMOPARASITES OF GOATS SLAUGHTERED IN AZARE ABATTOIR
Wafaa N. Jasim Faten N. Jasim	Kufa University IRAQ Najaf Education Directorate IRAQ	CALCULATION OF THE MASS ATTENUATION COEFFICIENT OF X-RAYS INCIDENT ON CSI AND ITS HALF-VALUE LAYER FOR AN ENERGY RANGE OF 20-80 KEV
K. A. Aly Sultan Albrakati	Jeddah University SAUDI ARABIA Al Azhar university EGYPT	ESTIMATING THE FILM THICKNESS AND COMPLEX INDEX OF REFRACTION BY USING ONLY THE UPPER REFLECTANCE ENVELOPE
S. Leporale M. Cianfriglia R. Moramarco V. Martini C. Marocco C. Bramucci F. Sestito R. Reda L. Testarelli T. Testori G. Perrotti	Sapienza University ITALY Fondazione Policlinico Universitario Campus Bio-Medico ITALY IRCCS Istituto Ortopedico Galeazzi ITALY Milan University ITALY Michigan University USA Lake Como Istitute ITALY	VERTICAL SKELETAL ASSESSMENT IN ORTHOGNATHIC SURGERY USING 3D CEPHALOMETRY

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ONLINE PRESENTATIONS

21.11.2025 / Hall-4, Session-2

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Dr. S.Selvem

AUTHORS	AFFILIATION	TOPIC TITLE
Rayhana Qurrota Aini Reni Oktavia	Lampung University INDONESIA	DO DIGITAL DISCLOSURE AND CASH HOLDING INFLUENCE EARNINGS MANAGEMENT? EVIDENCE FROM INDONESIA'S STATE-OWNED ENTERPRISES
K.Naveen Rajan Dr. S.Selvem	Nadar Mahajana Sangam S. Vellaichamy Nadar College INDIA	MENTAL HEALTH IN ANIME: ANIMATION REFLECTS AND RESHAPES REAL-WORLD CONVERSATIONS
Shahima Salmi Dr. Mehzabin Rehman	University of Science and Technology Meghalaya INDIA	A COMPREHENSIVE STUDY ON NANOPARTICLE-ASSISTED MITIGATION OF ARSENIC STRESS IN LEGUMINOUS PLANTS
Ikram Elbezyouy Ilias Oussif Aabdousse Jamal Wahid Nadya	Sultan Moulay Slimane University MOROCCO	THE STRAWBERRY TREE (ARBUTUS UNEDO L.): IMPACTS OF ECOLOGY ON PHENOLIC COMPOUNDS
Anxhela Luzi Elena Kokthi	Agricultural University ALBANIA	INTERACTION BETWEEN BODY MASS INDEX, SELF- PERCEPTION, AND EATING BEHAVIORS: THE PSYCHOSOCIAL IMPACT ON OBESITY RISK AMONG YOUNG ADULTS
Hana Jameel Almehmadi Prof. Dr. Ghada hamouda	King Abdulaziz University SAUDI ARABIA	THE RELATIONSHIP BETWEEN LEADERSHIP STYLES AND NURSES' PERCEPTION OF AFFECTIVE WORKPLACE WELL-BEING IN GOVERNMENTAL HOSPITALS IN MAKKAH-SAUDI ARABIA
Hana Jameel Almehmadi Lujain Garoot Prof. Dr. Ghada M. Hamouda	King Abdulaziz University SAUDI ARABIA	THE RELATIONSHIP BETWEEN FRONT-LINE NURSES' PERCEPTION OF LEADERSHIP WALKROUND AND SAFETY CULTURE IN JEDDAH IN SAUDI ARABIA
Ghada M. Hamouda Shahad A. Alzahrani Sarah F. Aldaini Rewaa H. Alharbi Raneem A. Alfarshooti	King Abdulaziz University SAUDI ARABIA	THE RELATIONSHIP BETWEEN CRITICAL CARE NURSES' BURNOUT AND HEALTH-RELATED QUALITY OF LIFE

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ONLINE PRESENTATIONS

21.11.2025 / Hall-5, Session-2

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Dragomira Nikolova

AUTHORS	AFFILIATION	TOPIC TITLE
Dragomira Nikolova	Medical University BULGARIA	ASSESSING THE APPLICABILITY OF SALIVA FOR IMMUNE-RELATED GENE EXPRESSION STUDIES IN ADVANCED PERIODONTITIS
Ali H Dosky	Duhok University IRAQ	IMPACT OF VITAMIN D DEFICIENCY ON CORNEAL HEALTH UPON CHILDREN WITH RICKETS
Tonay Sarkar Abdul Ali Bhuiyan	Pabna University of Science and Technology BANGLADESH	COMPUTATIONAL INSIGHTS INTO THE BINDING STABILITY AND PHARMACOKINETIC SUPERIORITY OF 10MYR-9A-3AMBA, AN ENDOPHYTIC METABOLITE AND ITS DERIVATIVES AS NOVEL PARP-1 INHIBITORS FOR THE TREATMENT OF TRIPLE NEGATIVE BREAST CANCER
Abdul Ali Bhuiyan Md Sohel Hossain Md Imon Ahmed Tushar Ahmed	Pabna University of Science and Technology BANGLADESH	UNDERSTANDING THE GLOBAL CANCER LANDSCAPE: A REVIEW OF TRENDS, RISK FACTORS, AND INTERVENTIONS
Mousumi Saha Md. Ataur Rahman Md. Rafiqul Alam	Gazipur Agricultural University BANGLADESH Bangladesh Agricultural University BANGLADESH	ASSESSMENT OF HEMATOLOGICAL AND BIOCHEMICAL ALTERATIONS FOLLOWING PLASMA TRANSFUSION IN GOATS
Huma Ikram Iqra Atique Darakhshan J. Haleem	Karachi University PAKISTAN	ATTENUATION OF LORAZEPAM INDUCE PLACE PREFERENCE BY BUSPIRONE IN AN ANIMAL MODEL OF EPILEPSY
Sana Riasat	Agriculture University PAKISTAN	ASSESSING THE ECONOMIC IMPACTS AND ADAPTATION BENEFITS OF CLIMATE CHANGE ON AGRICULTURAL SYSTEMS IN PUNJAB, PAKISTAN
Houda Younssi Tarhzouti Abdelmajid Khabbach Said Louahlia	Sidi Mohamed Ben Abdellah University MOROCCO	SEAWEED (SARGASSUM MUTICUM (YENDO) FENSHOLT): A SUSTAINABLE SOURCE OF ANTIFUNGAL COMPOUNDS AND GREEN PRESERVATIVES FOR NATURAL COSMETICS

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ONLINE PRESENTATIONS

21.11.2025 / Hall-6, Session-2

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Klaudia Darragjati

AUTHORS	AFFILIATION	TOPIC TITLE
Klaudia Darragjati	Shkodra University ALBANIA	MARTIN CAMAJ'S "ALBANISCHE WORTBILDUNG" IN THE CONTEXT OF ALBANOLOGICAL AND INDO-EUROPEAN LANGUAGES
S. Leporale M. Cianfriglia R. Moramarco V. Martini C. Marocco C. Bramucci F. Sestito R. Reda L. Testarelli T. Testori G. Perrotti	Sapienza University ITALY Campus Bio-Medico University Hospital Foundation ITALY Milan University ITALY Michigan University USA Lake Como Istitute ITALY	RADIATION-FREE 3D TOOLS FOR ORTHOGNATHIC EVALUATION
S. Leporale M. Cianfriglia R. Moramarco V. Martini C. Marocco C. Bramucci F. Sestito R. Reda L. Testarelli T. Testori G. Perrotti	Sapienza University ITALY Campus Bio-Medico University Hospital Foundation ITALY Milan University ITALY Michigan University USA Lake Como Istitute ITALY	3D STUDY OF VERTICAL FACIAL DIMENSIONS IN ORTHOGNATHIC SURGERY
Gazmend Nafezi	Prishtina University KOSOVO	ASSESSMENT OF LIGNITE-FIRED POWER PLANTS IMPACT ON INCREASING RADIOACTIVITY CONCENTRATIONS
Ramya S Prathesha Pusala Siri Dr.M.Meena	R.M.K. Engineering College INDIA	SCIENCE OF CLIMATES AND GEOENGINEERING
Anjali Rana Arun Mittal Chetan Vashist Ajesh Chauhan	Hindu College INDIA	ARTIFICIAL INTELLIGENCE INTEGRATING REGENERATION: THE FUTURE OF PERSONALIZED TISSUE ENGINEERING
Asmaa ELYamani Mohamed Abourouh Houda ELYacoubi Anas Fellaki Atmane Rochdi	Ibn Tofail University MOROCCO	BIOACTIVE POTENTIAL AND ANTIFUNGAL PROPERTIES OF A CISTACEAE MEDICINAL PLANT FROM MOROCCAN FORESTS

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ONLINE PRESENTATIONS

21.11.2025 / Hall-1, Session-3

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Assist. Prof. Dr. Burçin BEKTAŞ PARDES

AUTHORS	AFFILIATION	TOPIC TITLE
Res. Assist. Sezen İlayda İLKUL Prof. Dr. Saadettin KAYIPMAZ	Karadeniz Technical University TÜRKİYE	PREVALENCE OF BIFID MANDIBULAR CONDYLE: A RETROSPECTIVE STUDY ON 55,976 PANORAMIC RADIOGRAPHS
Dr. Tuğçe GAZİOĞLU KİŞİ	Gaziantep City Hospital TÜRKİYE	DID THE FLOW RATE OF THE POPLITEAL ARTERIOVENOUS FISTULA DETERMINE THE ANESTHETIC TECHNIQUE?
Dr. Bahar USLU BAYHAN	Gaziantep City Hospital TÜRKİYE	ULTRASOUND-GUIDED TAP BLOCK WITH SEDATION AS A SAFE ALTERNATIVE TO GENERAL ANESTHESIA IN A HIGH-RISK PATIENT WITH LOW EJECTION FRACTION
Dr. Bekir Suat KÜRKÇÜOĞLU	Gaziantep City Hospital TÜRKİYE	SUCCESSFUL AWAKE NASAL FIBEROPTIC INTUBATION IN A MAXILLOFACIAL TRAUMA PATIENT WITH LIMITED PULMONARY CAPACITY
Assist. Prof. Dr. Burçin BEKTAŞ PARDES Prof. Dr. Gülten GÜVENÇ	University of Health Sciences TÜRKİYE	THE IMPACT OF CLIMATE CHANGE ON WOMEN'S HEALTH AND NURSING APPROACHES
Çağla ÇAĞATAY Assoc. Prof. Dr. Gökhan YAZICI Res. Assist. Selcan SUİÇMEZ Prof. Dr. Canan YÜCESAN Prof. Dr. Bijen NAZLIEL	Gazi University TÜRKİYE Gazi University TÜRKİYE Ankara Medipol University TÜRKİYE Ankara University TÜRKİYE Gazi University TÜRKİYE	THE EFFECT OF DIFFERENT AMBIENT TEMPERATURES ON AEROBIC EXERCISE IN MULTIPLE SCLEROSIS: THE SEARCH FOR OPTIMAL TEMPERATURE
Res. Assist. Sezen İlayda İLKUL Assoc. Prof. Dr. Ayşenur BAKAL Prof. Dr. Saadettin KAYIPMAZ	Karadeniz Technical University TÜRKİYE	FROM ANKYLOSIS TO OSTEOARTHRITIS: A PILOT STUDY ON DEGENERATIVE CHANGES IN THE CONTRALATERAL TEMPOROMANDIBULAR JOINT
Onur ULUAR	Akdeniz University TÜRKİYE	THE MITOGENOMICS OF EUPHOLIDOPTERA SMYRNENSIS (ORTHOPTERA, TETTIGONIIDAE): CONSERVED PATTERNS FOUND ACROSS THE PANCRUSTACEAN MITOGENOME

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ONLINE PRESENTATIONS

21.11.2025 / Hall-2, Session-3

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Assoc. Prof. Saju Abraham

AUTHORS	AFFILIATION	TOPIC TITLE
Abubakar Muhammad Hammari Abubakar Aisami Ibrahim Abubakar Aishatu Bello Ibrahim Umar Abubakar	Gombe State University NIGERIA	COMPARATIVE ASSESSMENT OF THE NUTRITIONAL AND MEDICINAL POTENTIAL OF THE LEAVES OF MORINGA OLEIFERA, SENNA TORA, AND SENNA OCCIDENTALIS
EL OUARYAGHLI Azdine	Sidi Mohamed Ben Abdellah University MOROCCO	SEASONAL VARIATION OF DUNG BEETLE COMMUNITY STRUCTURE IN THE SOUTHERN RIF, MOROCCO
EL MORABET Ihsane Azdine El Ouaryaghli Rachida El Fadili Abderrahim Bouhaddioui Jamila Bahhou	Sidi Mohamed Ben Abdellah University MOROCCO	IMPACT OF DROUGHT ON THE TROPHIC STATUS OF LAKE AGUELMAM TIFOUNASSINE (MIDDLE ATLAS, MOROCCO)
Assoc. Prof. Saju Abraham	Newman College INDIA	TRADITIONAL ECOLOGICAL KNOWLEDGE: THE MISSING LINK IN BIODIVERSITY CONSERVATION AND SUSTAINABLE DEVELOPMENT
ALAOUI MHAMDI Omar AMEKRANE El Houcine DRIOUECH Hanane SAOUAB Fatima-Ezzahra LOUAHLIA Said LIBIAD Mohamed KHABBACH Abdelmajid	Sidi Mohamed Ben Abdellah University MOROCCO Abdelmalek Essaadi University MOROCCO	ETHNOBOTANICAL STUDY OF THYMUS MUNBYANUS BOISS. & REUT. (LAMIACEAE) IN THE MOROCCAN MIDDLE ATLAS: THERAPEUTIC USES AND TRADITIONAL KNOWLEDGE
Umar Abubakar Abdulrahman Dantani Alhassan Abdullahi	Kebbi State Polytechnic NIGERIA	THE GROWTH PERFORMANCE OF AFRICAN CATFISH (CLARIAS GARIEPINUS) FED DIET WITH VARYING LEVEL OF SENNA TORA LEAF MEAL
Md. Shohag Hossen Neaz Al Hasan Pranta Saha Nasrullah Forajy	Gopalganj Science and Technology University BANGLADESH	PROBIOTIC STRATEGIES FOR VIBRIOSIS MITIGATION IN BLACK TIGER SHRIMP (PENAEUS MONODON) AQUACULTURE: ADVANCES, CHALLENGES, AND FUTURE DIRECTIONS

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21.11.2025 / Hall-3, Session-3

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Dr. Jyoti Rani

AUTHORS	AFFILIATION	TOPIC TITLE
Arie Febrianto Mulyadi Novia Trisna Rahmayanti Sukardi	Brawijaya University INDONESIA	FORMULATION AND EVALUATION OF AN ANTIOXIDANT CLAY MASK CONTAINING AVOCADO LEAF (PERSEA AMERICANA MILL.) AND LEMON (CITRUS LIMON L.) EXTRACTS
ALI BOUKRA OMAR BOUKRA SANAA SAOIABI MILOUD EL KARBANE	Mohammed V University MOROCCO	FACTORIAL DESIGN OPTIMIZATION OF THE METHYLENE BLUE ADSORPTION PROCESS ONTO APATITE-MATERIALS
ShahidAdeel Mahwish Salman Muhammad Usama Noman Habib Muhammad Aftab	Government College University PAKISTAN	MUSHROOM AS BIO-SOURCE OF NATURAL COLORANT FOR SUSTAINABLE TEXTILE
Dr. Jyoti Rani	Parul University INDIA	ECO-FUNCTIONAL VALORIZATION OF SILK COCOON WASTE USING BIXA ORELLANA NATURAL DYE: A SUSTAINABLE APPROACH TO COLOURATION AND BIOACTIVE TEXTILE DEVELOPMENT
Violeta Jakovljević Svetlana Jeremić	State University SERBIA	THE ANTIOXIDANT AND ANTIMICROBIAL ACTIVITY OF USNEA BARBATA L. FROM MOUNT KOPAONIK IN SERBIA
Amal RAMZI Nada OUARDIRHI Abdellah FARAH	Sidi Mohamed Ben Abdellah University MOROCCO	INSECTICIDAL ACTIVITY OF THREE ESSENTIAL OILS FROM LAVANDULA OFFICINALIS, SALVIA OFFICINALIS AND CYMBOPOGON CITRATUS AGAINST MOSQUITO VECTORS
Amaan Arif	Amity University UNITED ARAB EMIRATES	ALTERED GUT MICROBIOME COMPOSITION OF STREPTOCOCCACEAE AND LACHNOSPIRACEAE IN MULTIPLE SCLEROSIS PATIENTS
Saurabh S.Suryawanshi Firoj A.Tamboli Pranav H.Pawar	Bharati Vidyapeeth College INDIA	HERBAL IMMUNOMODULATORS: A NATURAL STRATEGY FOR IMMUNE SYSTEM REGULATION
Muhammed Shuaib Muhammed Ochuko Orakpoghenor Sunday Blessing Oladele Bisalla Mohammed Ibrahim Waziri Musa	Ahmadu Bello University NIGERIA Abuja University NIGERIA	PRE-ADMINISTRATION WITH NIGELLA SATIVA SEED POWDER CAUSED ALTERATIONS IN ANTIBODY AND SERUM INTERFERON GAMMA PROFILES IN COCKERELS CHALLENGED WITH A VERY VIRULENT INFECTIOUS BURSAL DISEASE VIRUS

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ONLINE PRESENTATIONS

21.11.2025 / Hall-4, Session-3

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Lect. Irina-Ana DROBOT

AUTHORS	AFFILIATION	TOPIC TITLE
Lect. Irina-Ana DROBOT	Technical University of Civil Engineering Bucharest ROMANIA	USING POPULAR PHILOSOPHY TO UNDERSTAND POLITICAL SPEECHES
Mehedi Hasan Mustafizur Rahman Imran Khan Nilima Khatun Sadia Afrin Pranty Maruf Khan Pavel	Helios Consultancy BANGLADESH	A RISKY COPING MECHANISM: WHEN MIGRATION BECOMES A NECESSITY, NOT A CHOICE
Dr. Sihem Garrouri	Northern Border University SAUDI ARABIA	ELIZABETH I: EMOTIONAL INTELLIGENCE AND EFFECTIVE LEADERSHIP
Silvana Shehu	Tirana University ALBANIA	THE IMPORTANCE OF THE DATA IN NATIONAL STRATEGIES
Assoc. Prof. Zamira Alimemaj Silvana Zanaj	Vlora Ismail Qemali University ALBANIA	WOMEN IN CURRENCY DESIGN: POWER, SYMBOLISM, AND NATIONAL IDENTITY
A. A. Muhammed D. O. Alonge J. A. Yusuf	Federal University of Technology Minna NIGERIA	INTEGRATION OF INFORMAL INTERACTIVE SPACE IN A DESIGN OF FACULTY OF ARCHITECTURE
Arc. Chinedu Uchechukwu Oluigbo Dr. Ebere Donatus Okonta Arc. Stanley Nwabueze Osamor Arc. Chidiebere Barnabas Ndubuisi	Niger Delta University NIGERIA Global Banking School UK Niger Delta University NIGERIA Federal University NIGERIA	USER ACCESSIBILITY IN SHOPPING MALLS: TOWARDS COMPLIANCE AND INCLUSIVE DESIGN

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ONLINE PRESENTATIONS

21.11.2025 / Hall-5, Session-3

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Assist. Prof. Anita PANDEY

AUTHORS	AFFILIATION	TOPIC TITLE
L. Boughlima A. Jabar L. Bahmad L. B. Drissi R. Ahl Laamara A. Benyoussef	Mohammed V University MOROCCO Hassan II University MOROCCO	FIRST-PRINCIPLES STUDY OF THE SPINTRONIC POTENTIAL OF THE RARE-EARTH-BASED HALF-HEUSLER COMPOUND FECEBI
Yassin CHNIKA Abderrahim JABAR Lahoucine BAHMAD Rachid AHL LAAMARA	Mohammed V University MOROCCO Hassan II University MOROCCO	FIRST-PRINCIPLES INSIGHTS INTO TIFE AND TIFEHX (X = 1, 2, 4) FOR SOLID-STATE HYDROGEN STORAGE
Sheikh Tanvir Ahmed	Syracuse University USA	TUNABLE PEROVSKITE FRAMEWORKS FOR NEXT GENERATION LITHIUM-ION BATTERIES
Marija Radmilović-Radjenović	Belgrade University SERBIA	FINITE ELEMENT ANALYSIS OF RADIOFREQUENCY TUMOR ABLATION
Assist. Prof. Anita PANDEY	Kirodimal Govt. Arts and Science College INDIA	DIVERSITY AND DISTRIBUTION OF THE ARANEAE FROM BARMKELA FOREST, CHHATTISGARH, INDIA
Mst. Nabiha Tahsin	Gopalganj Science and Technology University BANGLADESH	FISH WASTE-DERIVED MICROORGANISMS FOR BIOPLASTIC DEGRADATION
Mansura Khanam Mitul Manash Pratim Sarma	Assam Down Town University INDIA	BIOCONTROL MEASURES FOR CATTLE TICK

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21.11.2025 / Hall-6, Session-3

ANKARA LOCAL TIME		ZOOM ID: 858 1117 0419
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HEAD OF SESSION: Dr. Houcine BECHERI

AUTHORS	AFFILIATION	TOPIC TITLE
Nicole Almeida Cavallaro Gerson Araujo de Medeiros	São Paulo State University BRAZIL	ASSESSMENT OF THE MUNICIPAL SOLID WASTE MANAGEMENT SYSTEM IN ITATIBA, BRAZIL
Shahin Sarowar	Rajshahi University BANGLADESH	ASSESSING THE IMPACTS OF CLIMATE CHANGE ON RICE PRODUCTION AND FARMER ADAPTATION STRATEGIES IN BANGLADESH
J.M. Adeeb Salman Chowdhury Mst. Nira Akter	Comilla University BANGLADESH	EVALUATING ADAPTATION TECHNIQUES IN RESPONSE TO DROUGHT SEVERITY USING PLS-SEM APPROACH IN NORTHWEST BANGLADESH
Md. Rafiqul Islam Farha Taklukdar Mohammad Lokman Ali Md. Hafijur Rahman Sudipta Kumar Nag Abdullah -Al- Hasan	Patuakhali Science and Technology University BANGLADESH	COMPREHENSIVE ANALYSIS OF THE IMPACT OF TIMSEN (N-ALKYL DIMETHYL BENZYL AMMONIUM CHLORIDE) ON A SPECTRUM OF WATER QUALITY PARAMETERS
Mizanur Rahman Howlader Helal Uddin Md. Nur Alam Mondal	Hajee Mohammad Danesh Science and Technology University BANGLADESH	MULTI-GEOMETRY OPTIMIZATION OF MICROCHANNEL HEAT SINK TECHNOLOGY FOR ADVANCED SATELLITE THERMAL CONTROL
Dr. Houcine BECHERI Bousaadia BAADJI Toufik TOUMI Abdelhamid NAIMI	SAAD Dahleb University ALGERIA SAAD Dahleb University ALGERIA MIRA Abderrahmen University ALGERIA TAHRI Mohammed University ALGERIA	POWERS CONTROL OF WIND TURBINE BASED ON DOUBLE FIELD INDUCTION GENERATOR
Fatima-Ezzahra SAOUAB Mohammed BENDRISS AMRAOUI	Sidi Mohamed Ben Abdellah University MOROCCO	SHORT SHOOT GROWTH AND REPRODUCTION RESPONSE TO LIGHT CONDITIONS VARY WITH ORDER BRANCHING IN THE PROXIMAL PART OF C. ATLANTICA CROWN
Dr. Shama Islam Dr. S. S. Ashraf Halima Khatoon	School of Engineering Sciences and Technology INDIA	PEROVSKITE COMPOSITE SOLAR CELLS: AN EFFICIENT, HIGHLY STABLE, NEXT GENERATION ENERGY MATERIALS

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ONLINE PRESENTATIONS

21.11.2025 / Hall-7, Session-3

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15 ^{00} : 17 ^{00}		ZOOM PASSCODE: 123456

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CONTENTS

THE RELATIONSHIP BETWEEN ARTIFICIAL INTELLIGENCE AND SOCIAL MEDIA

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ABSTRACT

Social media has become a part of the business world with the growth of the digital and connected consumer. In this digital world, platforms like Instagram, TikTok, and YouTube are changing the way businesses communicate with consumers, offering brands unprecedented visibility, interaction, and personalization. Social media, the most ubiquitous digital tool of the hypermodern age, recognizes account holders through artificial intelligence and tailors posts to their characteristics. Artificial intelligence is now defined as a tool that completely dominates social media. The use of AI in social media is increasing at an unprecedented rate and is constantly transforming social media. AI plays a significant role in content creation, post scheduling, campaign analysis, and other aspects of social media. Applying artificial intelligence tools to social media management can be an important element to increase the performance and effectiveness of marketing communications. Artificial intelligence is a general term used for numerous applications that provide machines with human-like intelligence. AI technology now works in conjunction with all other technologies. AI has become a powerful tool for creating and managing social media content. Social media platforms have integrated AI technology into their algorithms to optimize the user experience. The excessive consumption habits that emerged simultaneously with digital technologies and social media are the most significant drivers of AI in social media. AI is considered a key digital trend and a key technology for the future to meet the high and ever-increasing customer demand for personalized shopping experiences. Instagram's algorithm, one of the most widely used social media platforms of recent times, is also based on AI and determines which content to display to users based on specific criteria. Artificial intelligence assesses the interests of every Instagram user and ensures they see posts that truly interest them.

Keywords: Artificial intelligence, social media, communication, digital technology.

INVESTIGATION OF THE ROLE OF GLUTEN CONSUMPTION IN CELIAC DISEASE

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ABSTRACT

Celiac disease is a chronic autoimmune enteropathy that develops in genetically predisposed individuals in response to the gluten protein found in grains such as wheat, barley, and rye. Gluten is a family of proteins composed primarily of two main proteins, gliadin and glutenin, naturally found in grains such as wheat, barley, and rye. Gluten's primary function is to provide elasticity, cohesiveness, and strength to dough through the protein network formed when wheat flour is mixed with water. This property is critical, especially in yeast-raised products like bread, as it traps the gases (carbon dioxide) released during fermentation, facilitating rise. It is also used as a binding agent in processed foods to hold ingredients together. With these beneficial properties, gluten is a key ingredient in baked goods such as bread, pasta, and cakes; however, it can cause digestive problems and intestinal damage in individuals with celiac disease and gluten sensitivity. Gluten, through its main component, gliadin, triggers severe autoimmune inflammation in the small intestinal wall in genetically predisposed celiac patients. This inflammation leads to the flattening (villi) of the finger-like projections (villi) that multiply the surface area for nutrient absorption, significantly reducing the absorption area. The resulting malabsorption (impaired absorption) prevents essential nutrients (fat, vitamins, minerals, etc.) from entering the bloodstream, leading to gastrointestinal symptoms such as chronic diarrhea and abdominal bloating, and to serious nutritional deficiencies such as growth failure, anemia, and osteoporosis in children, leading to systemic health problems.

Consequently, eliminating gluten exposure is the single most effective lifelong treatment for celiac disease. Strict adherence to a gluten-free diet halts intestinal damage, rapidly alleviates symptoms, supports normal growth and development in children, and significantly reduces the risk of potentially serious complications, including malignancies. This treatment not only improves patients' overall quality of life; Comprehensive nutrition education and social support are crucial for ensuring integration into family and social life. These findings are of great importance for disease management and public health strategies and clearly demonstrate that future research investigating the physiological role of gluten in celiac disease will significantly contribute to and benefit future research.

Keywords: Celiac, Gluten, Gluten-Free Diet, Villous Atrophy, Malabsorption Syndrome, Quality of Life

THE GLOBAL DEVELOPMENT OF ARCHAEOLOGY: FROM ANTIQUARIANISM TO DIGITAL ARCHAEOLOGY

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ABSTRACT

Archaeology has evolved from the curiosity-driven antiquarian pursuits of ancient rulers to a sophisticated, interdisciplinary science. Early examples, such as the excavations by the Babylonian King Nabonidus (6th century BCE), demonstrate an initial historical consciousness. During the Renaissance (14th–17th centuries), antiquarianism flourished, particularly among European elites who collected and displayed artifacts as symbols of cultural prestige. The 18th and 19th centuries marked a turning point: the excavations at Pompeii (1748) and Troy (1870s) established stratigraphic methods and global interest in classical civilizations. Simultaneously, museums such as the British Museum (1753) institutionalized the preservation of antiquities. The early 20th century introduced professionalization and theoretical diversification. Processual archaeology (Binford 1962) emphasized scientific objectivity and systems theory, while post-processual approaches (Hodder 1986) highlighted symbolism, context, and agency. The integration of radiocarbon dating (Libby 1949) and GIS revolutionized chronological and spatial analyses. In the 21st century, digital and participatory archaeology have reshaped the discipline through 3D modeling, drone mapping, and open-access data sharing. Globally, archaeology now balances heritage management, ethics, and decolonization, while in Turkey figures such as Osman Hamdi Bey and institutions like the Turkish Historical Society have bridged Western methodologies with local identity. Overall, archaeology's development reflects a continuous dialogue between technological innovation, theoretical transformation, and cultural responsibility.

Keywords: archaeology, antiquarianism, processualism, digital archaeology, heritage management

AN ANALYSIS OF HARMONIC APPROACHES USED BY NECIL KÂZIM AKSES IN "FIVE CHORAL PIECES BASED ON FOLK SONGS"

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ABSTRACT

Introduction and Purpose: Music, as a fundamental element of culture, serves as a cultural locus of memory that reflects the unique identity of every society. In particular, folk songs constitute a significant indicator in representing both the tangible and intangible components of the society to which they belong. Cultural transformations are often observed following wars or shifts in political regimes, and among the areas most evidently affected by these changes is music.

After the First World War, the Ottoman Empire underwent a regime change and evolved into the Republic of Turkey under the leadership of Mustafa Kemal Atatürk. The newly established Republic, proclaimed on October 29, 1923, oriented itself toward Western civilization in all fields—political, economic, military, and cultural—seeking to distance itself from Eastern traditions. The reforms introduced during the early years of the Republic were collectively known as the "Revolutions" (İnkılâplar), among which the most debated was the so-called Music Revolution (Mûsikî İnkılâbı).

The Music Revolution can be summarized as a process of breaking away from Eastern music and creating a modern, polyphonic national Turkish music. Within this process, it was envisaged that folk songs would be collected from Anatolia to form a repertoire, and that these songs would be arranged in polyphonic settings by Turkish composers. Moreover, composers were encouraged to incorporate the melodic and rhythmic materials of folk music into their original works. The first examples of such compositions can be found among the early modern Turkish composers, particularly those known as the Turkish Five. By polyphonically arranging folk songs, these composers made significant contributions to the development of a contemporary national music.

Materials and Methods: This study aims to reveal the harmonic understanding adopted by Necil Kâzım Akses, one of the Turkish Five, in his polyphonic treatment of folk songs. The research employs a qualitative methodology based on literature review and harmonic analysis. The folk songs contained in Akses's 1963 publication entitled "Five Choral Pieces Based on Folk Songs" were identified, and harmonic analyses were conducted on the notated material to describe the composer's harmonic approaches.

Results: The analyses indicate that in "Five Choral Pieces Based on Folk Songs," Akses generally employed SATB (soprano, alto, tenor, bass) settings for mixed choir, distributed the main melodic material among different vocal parts, and at times assigned the melody to a single voice while writing accompanying harmonies for the others. In terms of harmonic language, he made use of both horizontal (contrapuntal) and vertical (chordal) harmony—occasionally combining the two. Through the use of canonic structures, he achieved polyphonic texture, and alongside traditional tonal harmony, he also applied quartal harmony derived from the scalar structures of the folk melodies he arranged.

Key Words: Harmonic Approach, Polyphony, Necil Kâzım Akses, Turkish Folk Music.

THE IMPORTANCE OF FUNCTIONAL FOOD NUTRITION IN DISEASE MANAGEMENT

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ABSTRACT

The desire for a quality and long life has elevated the role of nutrition beyond that of a basic energy source. Nutrition encompasses not only physiological and psychological dimensions but also holds strategic importance due to its ability to preserve, improve health, and enhance the quality of life. Modern healthcare approaches necessitate not only the treatment of diseases but also their prevention and the dietary management of chronic conditions. In this context, functional foods, which offer specific physiological benefits and reduce disease risk in addition to meeting basic nutritional needs, have come to the forefront.

For a food to be classified as functional, it must contain active agents such as probiotics, prebiotics, bioactive peptides, or antioxidants in sufficient quantities to provide a scientifically proven effect in the body. These foods can be naturally occurring products without alteration, or they can be enriched with specific nutrients or developed through biotechnological methods, integrated as a part of the daily diet. The rapid growth of the food industry in this area has made functional foods an accessible component of daily nutrition. The importance of these foods in disease management stems from the ability of their bioactive components to directly interfere with pathological processes. For instance, probiotics, which support gut health, play a critical role in the management of autoimmune and inflammatory bowel diseases by reducing inflammation and modulating the immune response. This illustrates that food is being utilized not just for its nutritive value but also as a therapeutic supportive agent. The effects of functional food consumption are not limited to symptom relief; studies have shown that individuals who are conscious of functional nutrition have a higher level of physical and mental health compared to unaware groups. This finding strongly highlights the potential of functional nutrition to enhance the quality of life and support mental well-being in individuals struggling with illness.

In conclusion, functional foods should be considered a supportive and preventive cornerstone of disease management in modern healthcare systems. Thanks to the scientifically supported effects of their bioactive components, these foods have the potential to improve the course of chronic diseases, significantly reduce complication risks, and optimize treatment processes. Therefore, increasing both public awareness and the education of health professionals regarding the effective and conscious use of functional foods is critically important for maximizing individual health outcomes and providing marked contributions to the quality of life. The investigation of this comprehensive approach is expected to contribute significantly to future research in the fields of nutrition and disease management.

Key Words: Functional Foods, Bioactive Compounds, Chronic Diseases, Quality of Life, Healthy Diet.

THE DEVELOPMENT OF ARCHAEOLOGY IN TURKEY: INSTITUTIONALIZATION, METHODOLOGICAL TRANSFORMATION, AND DIGITAL HERITAGE

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Abstract

The development of archaeology in Turkey reflects a sequence of institutional, methodological, and ideological transformations that parallel global disciplinary trends while exhibiting distinctive local trajectories. Early proto-archaeological interest—documented in Ottoman and pre-Ottoman engagements with antiquities—culminated in pivotal legal and institutional reforms in the late 19th and early 20th centuries, notably the *Âsâr-ı Atîka Nizamnamesi* (1884) and the museum and administrative initiatives associated with Osman Hamdi Bey; these measures established state guardianship over antiquities and curtailed the export of cultural property. The early Republican era institutionalized archaeological research through the Turkish Historical Society and accelerated professional training by sponsoring students abroad, bringing modern archaeological methods and foreign scholars into Turkish universities. From the mid-20th century onward, scientific advances—radiocarbon dating, stratigraphic techniques, archaeometry—and international collaborations expanded research questions and chronological precision. Since the 1980s and especially after 2000, Turkey has integrated archaeometric methods, rescue archaeology driven by infrastructure projects, and, more recently, digital tools (GIS, 3D modelling, drone survey) and participatory heritage practices that involve local communities. Contemporary Turkish archaeology therefore balances scholarly aims with heritage management, legal protection, and decolonizing impulses: it seeks both rigorous scientific inference (as developed in global processual/post-processual debates) and reflexive, locally engaged stewardship of the archaeological record. This synthesis highlights how Turkish archaeology's distinct legal history, institutionalization, and rapid digital uptake make it a salient case for studying the global-local dynamics of the discipline.

Keywords: archaeology in Turkey, heritage management, processual archaeology, digital archaeology, institutionalization

MODAL STRUCTURE IN THE PRE-CLASSICAL PERIOD KAR FORM: THE EXAMPLE OF ŞEYH ABDÜLÂLÎ'S EVİÇ KAR

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ABSTRACT

Introduction and Purpose: This study aims to examine the modal structure of *Eviç Kâr*, composed by Şeyh Abdülâlî Efendi, one of the leading composers of the late sixteenth century and the pre-classical period of Turkish music. The piece was chosen as it represents the modal perception of the pre-classical era and stands among the early examples of the *Kâr* form. The main objective is to evaluate the theoretical, structural, and aesthetic characteristics of the *Eviç makam* within the *Kâr*form, based on historical sources and theoretical references. In this context, the relationship between the modal system and formal aesthetics of the period was examined, emphasizing Abdülâlî's musical approach as a transitional link toward the classical era.

Materials and Methods: The study comparatively examined theoretical perspectives from the pre-classical period. For this purpose, the definitions of *Eviç makam* by Kantemiroğlu, Abdülbaki Nâsır Dede, Haşim Bey, and Arel–Ezgi–Uzdilek were analyzed in terms of scale, melodic motion, and final–dominant relationships. The melodic structure of the piece was studied through notation, focusing on main tonal centers, cadences, melodic flow, and modulation points. Both theoretical and performative data were combined to achieve a comprehensive analysis.

Results: The analysis revealed modulations within the main *Eviç* framework to *Segâh, Hicaz, Bestenigâr, Sabâ, Rast,* and *Müstear*makams. These transitions indicate that Abdülâlî skillfully employed the free melodic movement characteristic of the pre-classical period and presented modal diversity within an aesthetically unified structure. Transitions to *Rast* and *Sabâ* in the middle section intensified melodic expression, while the return to *Eviç* at the end reinforced formal coherence.

Discussion and Conclusion: The findings show that *Eviç Kâr* by Şeyh Abdülâlî Efendi serves as an important bridge between the pre-classical and classical styles in terms of modal richness, formal unity, and expressive depth. The composition successfully integrates modal transitions, form balance, and rhythmic coherence, demonstrating a high level of musical awareness even before the establishment of strict formal discipline.

Key Words: Eviç makam; Şeyh Abdülâlî; Kâr form; Pre-classical period; Turkish music; Modal analysis

A NEW KIRK-TYPE ITERATION METHOD AND SOME FIXED POINT THEOREMS

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ABSTRACT

Introduction and Purpose: To define a new type of iteration by addressing different types of iteration in fixed-point theory. To examine the conditions under which the theory will converge in fixed-point theory.

Materials and Methods: Studies using the Kirk form of these iteration methods in the literature are evaluated.

Results: One of the theories stating that various techniques can be applied to reach the exact or approximate solution of nonlinear equations is fixed-point theory. Within this theory, iteration methods are used as a tool to solve many equations and problems. Starting with the Picard method, a broad literature has emerged and continues to develop due to different reasons, such as the definition of new iterations or the introduction of new versions in different spaces or structures. One of these new versions of iteration methods is the Kirk-type iteration methods. These iteration methods are obtained using the sum and combinations of a finite number of transformations. First proposed by Kirk in 1972, this version has led to many new results. In this study, a new version of Kirk-type iteration method is defined.

Significance Of The Research: Using Kirk-type iteration method, convergence was achieved under some necessary conditions. It is concluded that this iteration method is stable when examined for changes in a specific step or some small data changes. Furthermore, it has been theoretically demonstrated that it converges faster than similar iteration methods. Although Kirk-type iteration methods make it difficult to reach the result of data dependency due to the composite and sum of a large number of operators, data dependency has been demonstrated.

Key Words: Kirk-type iteration methods, rate of convergence, stability, and data dependency

NUTRITIONAL COMPLIANCE AND ITS IMPORTANCE TO MANDATORY DIETARY RESTRICTIONS IN DIALYSIS PATIENTS

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ABSTRACT

Dialysis is critical for survival in the treatment of Chronic Renal Failure (CKD), while medical nutrition therapy (MNT) is fundamental for managing the complications of the disease and reducing mortality. The diet of CKD patients undergoing dialysis involves complex and mandatory restrictions in terms of macro and micronutrients such as protein, energy, fluid, sodium, potassium, and phosphorus. The patient's willingness and consistent adherence to these intense and demanding nutritional requirements, i.e., dietary compliance, plays a central role in treatment success. As a direct reflection of dietary compliance, the patient's serum phosphorus and potassium levels are maintained within the ideal range, which reduces the cardiac risks associated with hyperkalemia and the bone mineral density associated with hyperphosphatemia. Strict adherence to these restrictions has a direct impact on the patient's clinical status, laboratory values, and quality of life. Difficulties in complying with these mandatory restrictions, which profoundly affect the patient's social life, eating habits, and psychology, can lead to: Anorexia stems from numerous factors, including depression, socioeconomic factors, and inadequate nutritional knowledge, and increases the risk of malnutrition (protein-energy wasting). Therefore, it is crucial to examine how dietary compliance affects patient survival and clinical course, and its central role in achieving biochemical control goals.

In conclusion, nutritional compliance with mandatory dietary restrictions in patients with Chronic Renal Failure (CKD) undergoing dialysis is a vital factor determining both short- and long-term clinical prognosis, despite complex nutrient (protein, fluid, sodium, potassium, phosphorus) restrictions. Dietary compliance has been found to manage clinical problems such as fluid overload and hypertension, biochemical abnormalities such as hyperkalemia and hyperphosphatemia, thereby reducing the risk of cardiac arrhythmias and bone mineral density abnormalities, and overall mortality. It is critical to create flexible nutrition plans tailored to individual needs, utilize innovative educational methods such as e-health, and adopt multidisciplinary approaches to empower patients regarding their diet, taking into account challenges associated with dietary adherence (anorexia, depression, socioeconomic factors, and lack of knowledge). This comprehensive literature review is expected to significantly contribute to the development of treatment strategies and future clinical research aimed at improving dietary adherence.

Keywords: Dialysis, Dietary Adherence, Mandatory Nutritional Restrictions, Chronic Renal Failure, Quality of Life.

ATTENUATION OF LORAZEPAM INDUCE PLACE PREFERENCE BY BUSPIRONE IN AN ANIMAL MODEL OF EPILEPSY

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ABSTRACT

Benzodiazepine dependence, particularly from lorazepam, remains a significant challenge in addiction research. Buspirone, a 5-HT1A partial agonist, has shown potential in modulating dependence-related neurochemical and behavioral alterations. This study aimed to evaluate the effects of buspirone on lorazepam-induced dependence in an animal model of epilepsy. Forty eight rats were assigned as control and pentylenetetrazol (PTZ) treated rats and treated with PTZ on alternate days for 15 days (35mg/kg; i.p.). One week after kindling development, rats were challenged with PTZ (70mg/kg; i.p.). rats were then treated with lorazepam and/or buspirone for 12 days. Lorazepam (2 mg/kg, oral) was administered on day 2, 4, 6, 8, 10, and 12, while buspirone (1 mg/kg, i.p.) was given daily. Anxiety-related responses (light-dark box) were monitored 20min post injection and antiepileptic effects were monitored 30min post injection for 1hr on day 0 and 12. On Day13, conditioned place preference was monitored. Rats were decapitated and brain samples (hippocampus and prefrontal cortex) were collected for neurochemical analysis by HPLC-EC. Rats exposed to lorazepam exhibited significant anxiolytic response, antiepileptic effects and concurrent place preference alongside altered neurochemical levels. Buspirone administration mitigated place preference and altered neurochemical levels. Results suggest buspirone's promising potential in countering lorazepam dependence by modulating serotonergic and dopaminergic pathways. These findings suggest coadministration of buspirone for attenuating the abuse potential of lorazepam without affecting its therapeutic profile.

Key words: Buspirone, Lorazepam, Conditioned place preference, Serotonin, Dopamine, Anxiety, Addiction

INVESTIGATION OF THE RELATIONSHIP OF POLYCYCLIC AROMATIC HYDROCARBONS WITH NUTRITION AND THEIR EFFECTS ON HEALTH

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ABSTRACT

Polycyclic aromatic hydrocarbons (PAHs) are a widespread class of chemical contaminants of environmental importance. Occurring worldwide as byproducts of both industrial and natural processes, PAHs require constant monitoring in the fields of public health and food safety due to their persistence (persistence in the environment) and toxicological risks.

Polycyclic aromatic hydrocarbons (PAHs) are chemical compounds containing fused aromatic rings and lacking heteroatoms or substituents. They are also identified as potential carcinogens formed by the pyrolysis or incomplete combustion of carbon-containing organic materials, various fossil fuels, and organic compounds such as food. PAHs, which can contaminate food, can primarily be transferred from air, water, and soil due to environmental pollution, or can be formed through thermal decomposition reactions, particularly during exposure of foods to high temperatures (grilling, smoking, etc.). PAHs are highly prevalent in the environment, and some have been found to have toxic, carcinogenic, and mutagenic properties. Among these, the most well-known PAH compound is Benzo[a]pyrene (BaP). Other quaternary ring PAHs, such as Benzo[b]fluoranthene (BbF), Benzo[a]anthracene (BaA), and Chrysene (CHR), are considered good indicators (markers) of carcinogenic PAH levels in foods. Meat and meat products are the primary sources of PAHs consumed through food, and the PAH content of these products varies primarily depending on the product form and the heat treatment method and duration applied. Epidemiological and toxicological studies demonstrate a direct association between the consumption of foods containing PAHs and DNA damage and various types of cancer.

In conclusion, the environmental and technological sources of PAH contamination in foods are a significant issue requiring urgent public health attention. This comprehensive assessment is expected to provide a scientific basis for the development of processing techniques and risk assessment strategies that will minimize PAH formation in foods, thus contributing significantly to the protection of consumer health.

Key Words: Polycyclic Aromatic Hydrocarbons, Pyrolysis, Oxidative Stress, Toxicology, Food Safety

EXAMINING THE ROLE OF DIETARY THERAPY IN THE MANAGEMENT OF IRRITABLE BOWEL SYNDROME

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Abstract

Irritable Bowel Syndrome (IBS) is a common functional gastrointestinal disorder characterized by chronic abdominal pain, bloating, and altered bowel habits (diarrhea and/or constipation), significantly impairing patients' quality of life. While the precise pathophysiology of this highly prevalent condition is not yet fully understood, current evidence points to a complex multifactorial etiology involving gut-brain axis dysregulation, visceral hypersensitivity, gut microbiota imbalance, and specific dietary triggers. Nutrition plays a central role in the management of IBS symptoms, and dietary modifications often serve as first-line treatment strategies. In recent years, the low-FODMAP diet, which restricts fermentable oligosaccharides, disaccharides, monosaccharides, and polyols, has received significant attention due to its high clinical efficacy in reducing bloating, gas, and abdominal discomfort in patients with IBS. The low-FODMAP approach is based on the mechanism of reducing osmotic load and gas production due to the rapid fermentation of these short-chain carbohydrates, which are poorly absorbed in the small intestine, in the colon. Additionally, personalized dietary approaches (gluten-free diets, increased soluble fiber intake, and probiotic use) have also shown promising results in certain IBS subtypes (e.g., diarrhea-predominant IBS-D, constipation-predominant IBS-C). However, the restrictive nature of some dietary interventions, particularly the low-FODMAP diet, raises concerns about long-term nutritional adequacy, microbiota diversity, and patient compliance. Therefore, professional dietary counseling and an individualized approach tailored to the patient's symptoms and subtype are vital to improving treatment outcomes.

In conclusion, the implementation of evidence-based and personalized dietary therapy in the management of Irritable Bowel Syndrome is believed to significantly contribute to patients achieving symptom control, significantly improving quality of life, and reducing the need for pharmacological treatment.

Key Words: Irritable Bowel Syndrome, Dietary Therapy, Functional Gastrointestinal Disorder, Gut Microbiota, Nutritional Strategies.

BRAND PERCEPTION BEYOND BORDERS: COMPARISON OF LOGISTICS MARKETING DYNAMICS THROUGH CONSUMER COMPLAINTS FROM TURKİYE AND THE USA

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ABSTRACT

This study aims to comparatively analyze consumer complaints directed at DHL and FedEx brands in Turkey and the United States. The data consists of a total of 1,500 complaints collected from the consumer platforms Şikayetvar.com and BBB.org. Using content analysis, the complaints were categorized under three main themes (product, delivery, customer service) and 15 sub-themes. The findings reveal that both brands face distinct complaint profiles across the two countries. For FedEx, complaints in the U.S. mainly focus on lost and damaged products, while in Turkey, unfair shipping fees and communication issues are more prominent. Regarding DHL, non-delivery problems are frequently observed in Turkey, whereas dissatisfaction with insurance processes is more common in the U.S. For both brands, “lack of resolution to complaints” emerged as a common issue. The study highlights the need for companies to enhance their digital complaint management systems and develop country-specific service strategies to improve customer satisfaction.

Keywords: Logistics service quality, global supply chain, logistics customer experience, consumer behavior

ANTECEDENTS OF EXPORT SEGMENTATION STRATEGY EFFECTIVENESS: THE PERSPECTIVE OF MARKET TURBULENCE, COMMITMENT, STRATEGY AND DIVERSITY

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ABSTRACT

The primary objective of this study is to analyze the antecedents that determine the effectiveness of segmentation strategies in exports and to examine the relationships between market turbulence, segmentation commitment, segmentation diversity, and strategies. The study was conducted with data obtained from 60 export companies operating in the TR83 Region. Partial least squares structural equation modeling (PLS-SEM) was used for data analysis. After completing the reliability and validity analyses of the measurement model, structural model hypothesis tests were conducted. Market turbulence was found to have a significant and positive effect on segmentation commitment. Segmentation commitment was found to be related to all segmentation strategy dimensions and segmentation diversity, and it was found that segmentation within countries was more effective than other segmentation approaches. The results of the study largely align with the existing literature on the determinants of segmentation strategies. However, it should be noted that the impact of segmentation diversity may vary depending on contextual factors, the sector in which the study is conducted, and other variables. The findings indicate that segmentation within countries was more effective than other segmentation approaches. This suggests that companies develop specialized marketing strategies by identifying homogeneous customer groups in their export markets, providing a competitive advantage. Furthermore, the driving force of segmentation commitment on export segmentation strategy effectiveness is directly related to the ability to adapt to changing market conditions. The current study was derived from a pilot research process conducted in the TR83 Region, and the results obtained are preliminary findings for a comprehensive study.

Keywords: Export segmentation strategy effectiveness, segmentation commitment, segmentation strategy, segmentation diversity, TR83 Region

THE RELATIONSHIP BETWEEN THE USE OF GENERATIVE ARTIFICIAL INTELLIGENCE AMONG UNIVERSITY STUDENTS AND THEIR CRITICAL THINKING AND PROBLEM-SOLVING SKILLS

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ABSTRACT

Introduction and Purpose: The 2020s, a decade marked by accelerating digital transformation, have presented higher education institutions with significant opportunities and challenges regarding the integration of artificial intelligence-based technologies into educational processes. Generative artificial intelligence tools, which have rapidly gained popularity in recent years, provide powerful support for students in accessing information, text production, analysis, and creativity processes. The purpose of this study is to examine the relationship between the use of generative artificial intelligence among university students and their critical thinking and problem-solving skills.

Materials and Methods: This descriptive and cross-sectional study sample consists of 1,015 students enrolled at a state university in Turkey. Data was collected between March and September 2025 using the Descriptive Characteristics Form, the Generative Artificial Intelligence Acceptance Scale, the California Critical Thinking Dispositions Scale, and the Problem-Solving Skills Scale. obtained. First, the Kolmogorov-Smirnov test was applied to determine the distribution characteristics of the variables, and an assessment was made as to whether the variables conformed to a normal distribution.

Results: The effect of generative artificial intelligence on problem-solving skills is statistically significant and negative ($\beta = –0.1062$, SE = 0.0211, $t = –5.04$, $p<0.001$, %95 CI [–0.1475, –0.0648]). This finding shows that students who use generative artificial intelligence more perceive their problem-solving skills as lower. The direct impact of generative artificial intelligence on critical thinking is positive and powerful ($\beta = 0.1731$, SE = 0.0102, $t = 16.97$, $p<0.001$, %95 CI [0.1531, 0.1931], $R^2 = 0.2261$). This result demonstrates that generative artificial intelligence directly increases students' critical thinking tendencies. The effect of problem-solving skills on critical thinking is also significantly positive ($\beta = 0.0661$, SE =

0.0151, t = 4.38, p<0.001, %95 CI [0.0365, 0.0956], R^2 = 0.0186). In other words, students with higher problem-solving skills also exhibit increased critical thinking tendencies.

Discussion and Conclusion: In this study, the use of generative artificial intelligence directly increases critical thinking, but it is observed that this effect is partially weakened by the mediating effect of problem-solving skills. Additionally, it has been found that students' use of artificial intelligence supports thoughtful, planned, and self-confident problem-solving approaches while reducing hasty and avoidant approaches.

Keywords: Artificial intelligence, student, critical thinking, problem solving.

THE RELATIONSHIP BETWEEN CYBERCHONDRIA LEVELS, E-HEALTH LITERACY, AND ARTIFICIAL INTELLIGENCE LITERACY IN ADULT WOMEN

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ABSTRACT

Introduction and Purpose: Cyberchondria, defined as excessive online health searching that heightens anxiety, has become increasingly prevalent in the digital era. As individuals rely more on digital platforms for health information, e-health and artificial intelligence (AI) literacy play a critical role in shaping health-related behaviors. Low levels of these literacies may increase vulnerability to misinformation and anxiety-driven searches. Therefore, this study aimed to examine the relationship between cyberchondria levels and e-health and AI literacy among adult women in Türkiye, and to identify how these factors interact to influence digital health behavior.

Materials and Methods: This cross-sectional study was conducted online across Türkiye between February and June 2025 with 1,016 women aged 18 years and older. The study population comprised all women aged 18 and above residing in Türkiye as of 2025. Based on a 5% margin of error and 95% confidence interval, a sample size of 384 participants was calculated using simple random sampling; however, convenience sampling was applied in practice. Women who met the inclusion criteria and voluntarily agreed to participate during the study period constituted the study sample. Data were collected using the *Descriptive Characteristics Form*, the *Short Cyberchondria Scale (CCS-12)*, the *E-Health Literacy Scale*, and the *Artificial Intelligence Literacy Scale*. Since the data were not normally distributed (Kolmogorov–Smirnov test, $p < .05$), non-parametric tests were employed, including the Mann–Whitney U, Kruskal–Wallis H, Spearman correlation, and linear regression analyses.

Results: Participants' mean cyberchondria score was *35.5 ± 8.77* (moderate level), their mean e-health literacy score was *28.0 ± 5.50* (high level), and their AI literacy score was *54.5 ± 11.1* (moderate level). Cyberchondria was positively associated with age and marital status but negatively correlated with education and employment status. E-health literacy showed a positive relationship with cyberchondria, whereas AI literacy was negatively correlated.

Regression analyses indicated that both e-health and AI literacy significantly influenced cyberchondria levels.

Discussion and Conclusion: Cyberchondria among adult women was found to be at a moderate level and significantly associated with both e-health and AI literacy. Cyberchondria behavior is multifactorial and cannot be explained solely by demographic or digital literacy variables. Developing educational and awareness programs for women with low e-health and AI literacy levels is essential for improving digital health behaviors.

Keywords: E-health; Nursing; Women; Cyberchondria; Artificial Intelligence.

POSSIBLE ASSOCIATION OF IMMUNOGENETIC POLYMORPHISMS WITH RECURRENT PREGNANCY LOSS

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ABSTRACT

Objective: To synthesize findings, on how immunogenetic variants, in the pathways of coagulation, immune regulation, angiogenesis, extracellular matrix remodeling, hormonal signaling and epigenetic control influence the risk of recurrent pregnancy loss (RPL).

Materials and Methods: We carried out a narrative review of peer-reviewed studies that probed polymorphisms (SNPs) in a suite of regulatory genes—F5, F2, SERPINE1/PAI-1, TNF various interleukins, VEGF, MMP2 MMP9, ESR1/PR, LEP/LEPR, DNMT3B—and also examined long non-coding RNAs such, as HOTAIR. In appraising the evidence we considered how consistently each variant was linked to recurrent pregnancy loss (RPL) weighed the plausibility of the associations checked for replication, across populations and paid particular attention to effect sizes and any hints of gene-environment interactions. Hormone-receptor variants (ESR1/PR) and leptin-pathway components (LEP/LEPR) have been linked to both receptivity and overall metabolic balance. At the time epigenetic regulators such, as DNMT3B with lncRNA variants like HOTAIR point to disrupted gene-expression programs that are crucial for implantation. The magnitude of these effects varies with ancestry and study design suggesting an architecture and highlighting the need, for models.

Results: Across studies thrombophilia-related genetic variants—Factor V Leiden (G1691A) the prothrombin G20210A mutation and the PAI-1 4G/5G polymorphism—have been consistently linked to microthrombosis and reduced perfusion. Promoter variants, in pro-inflammatory genes, TNF-α appear to drive a shift toward a Th1-dominant environment at the maternal–fetal interface. Likewise polymorphisms in VEGF are correlated with placental angiogenesis while variants, in MMP2 and MMP9 are associated with altered invasion and extracellular-matrix turnover

Discussion and Conclusion: Immunogenetic polymorphisms appear to exert an impact, on pregnancy loss acting through overlapping mechanisms that touch on clotting, inflammation, new-vessel formation, tissue remodeling and gene regulation. By weaving multi-locus genotype profiles with data clinicians may sharpen risk stratification and tailor preventive strategies more precisely. Yet the path to routine use still requires standardized assays and large-scale, multi-ethnic functional investigations.

Keywords: Recurrent pregnancy loss; immunogenetics; genetic polymorphism; thrombophilia; angiogenesis; epigenetics.

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Keywords: Recurrent pregnancy loss; immunogenetics; genetic polymorphism; thrombophilia; angiogenesis; epigenetics.

EVALUATION OF VAN YÜZÜNCÜ YIL UNIVERSITY CAMPUS IN THE CONTEXT OF BIOPHILIC DESIGN

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ABSTRACT

Introduction: Biophilia; It can be defined as the hereditary need of nature for physical and mental health, vital satisfaction and satisfaction, and therefore the effort to return to nature and integrate with nature. Over time, humanity has created places that use nature only to meet their needs, create spaces with only artificial areas, completely disconnect from nature, and experience mental problems, which has increased the disease and stress levels of individuals.

Biophilic design is the building design process that includes incorporating natural materials, natural ventilation, natural lighting, shapes and forms inspired by nature and integrated with nature into the artificial environment. The built environment design in current urban areas leads to the deterioration of natural systems, thus breaking the bond of human beings with nature; Based on the idea that this lifestyle negatively affects human health by causing excessive consumption of natural resources, decrease in biodiversity and atmospheric deterioration; The concept of biophilic design has emerged.

Material Method: The study will be carried out at Van Yüzüncü Yıl University Zeve Campus. Photographs taken on campus, expert evaluation forms, observation forms constitute the main material of the study. In this context, in the study, the biophilic elements specific to the YYU campus will be determined in the context of expert evaluations and will be revealed by analyzing observation forms. Spss package program will be used in the analysis of the data and the data will be analyzed by one-way variance test.

Results: Universities and campuses are also known as areas where staff and students need to spend most of their time indoors and spend their days stressful and unproductive. Biophilic design can be applied in these spaces, creating spaces that reduce stress and enhance the learning experience.

In the study, in order to establish the human-nature relationship in the healthiest way, the campus evaluation of Van Yüzüncü Yıl University in the context of biophilic design will be discussed. The research will focus on the evaluation of the existing spaces of the University as well as the areas that are compatible with its natural structures and suitable for biophilic design. The results of the study are expected to contribute to the repair of the human-nature bond.

Keywords: Biophilia, biophilic design, campus

AN INVESTIGATION OF VAN YYU COASTAL PARK IN THE CONTEXT OF INFORMATION PROCESSING THEORY

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ABSTRACT

Information processing theory is one of the evolutionary landscapes aesthetic theories in which its components are studied the most. Coherence, Legibility, Mystery and Complexity are very successful in explaining how preferable a place and why it preferred most. Highly preferred successful spaces can be analyzed with these components. Measuring and detecting these components in existing successful physical spaces; It is important in terms of eliminating the deficiencies of the space designs to be made in the future and revealing stronger designs. The Sahil Park, located in the Zeve Campus of Van Yüzüncü Yıl University, which will be examined within the scope of the study, is also a highly preferred and successful place. In this study, it is aimed to evaluate the Sahil park in terms of information processing theory components in the context of expert evaluations. The main material of the study consists of VanYüzüncü Yıl University Beach Park, the photographs taken in this park, the expert evaluations and the scores given by three different experts to the parks taken in Van YYU Beach Park in the context of information processing theory. In the study, it was tried to reveal the strongest park areas in terms of consistency, legibility, mysteriousness and complexity. The data were analyzed with the Spss program and it was tried to determine whether there was a significant difference by one-way anova analysis. The study enabled the determination of the components of successful spaces and the determination of Coherence, Legibility, Mystery and Complexity, which are the components of information processing theory, with physical elements. In this way, the components of the theory explained abstractly were tried to be explained with physical spaces and the components of these spaces. It is thought that the study will guide the landscaping arrangements to be made in the future. In addition, it is recommended that future studies proceed with psychological methods in a pattern that combines user preferences and expert evaluations.

Key Words: Landscape, information processing theory, Seaside Park

EVALUATION OF VAN CASTLE IN THE CONTEXT OF THE PROSPECT REFUGE THEORY

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ABSTRACT

Introduction and Purpose: The Prospect-Refuge Theory was introduced in 1975 by famous geographer Jay APPLETON. It has been observed that many studies have been carried out on the Prospect-Refuge theory so far. Theory; it emphasizes people's perception of visual information, finding opportunities to explore the environment, seeking shelter and areas where we can hide, for seeing with tout seen. By nature, people need both open spaces (prospects) where they can take care of the environment and safe zones where they can be protected from dangers.

Materials and Methods: The location of Van Castle, its establishment and its dominance of its geography are in relation to the prospect refuge theory and its components in many respects. Van Castle offers a prospect feature according to its surroundings with its sudden rise in its geography. The castle has been used for defense and surveillance purposes over the years. The paths, rock cavities, depressions and some cave-shaped cavities leading to the castle were used as refuges, that is, as shelters, protection and hiding areas. Expert evaluation of the scenic points of Van castle in terms of prospect-refuge theory will be made. With on-site observations and photographic determinations, determinations will be made in terms of the prospect-refuge theory of Van castle, and the collected data will be objectively evaluated by experts.

Results: Van Castle is an important cultural landscape element in terms of prospect refuge with its dominance of the view and its sheltered structure that is not easily accessible from the environment. The castle is located in a position that dominates its geography. This allows any approaching danger to be detected well in advance. In addition, the sheltered space setup gives confidence to the users. From this point of view, Van Castle is an important place in terms of both being a cultural landscape heritage and offering a unique experience in terms of landscape aesthetics. It is thought that the study will give an idea in the landscape restorations to be carried out in the Van castle. In addition, it is recommended to carry out studies based on user-oriented surveys for future studies.

Key Words: Landscapes, Aesthetics, Evalutionary Theory, Prospect-Refuge, Jay APPLETON

HOW TRYPTOPHAN CAN BOTH HELP AND HINDER MEMORY

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ABSTRACT

Tryptophan, an essential amino acid obtained through diet, serves as a critical precursor for two competing metabolic pathways with profound implications for brain function and memory. The majority of dietary tryptophan is metabolized through the kynurenine pathway, while a smaller fraction is converted into serotonin. This study investigates the impact of tryptophan metabolism on synaptic plasticity, neurogenesis, and memory consolidation using a combined biochemical and behavioral approach. We treated male Albino Wistar rats with different doses of tryptophan for 4 weeks followed by weekly assessment of memory performance through Morris Water Maze (MWM) and Novel Object Recognition (NOR) tests. High-performance liquid chromatography (HPLC) was used to quantify serotonin and metabolites in hippocampus, while kynurenine in plasma samples. Our findings reveal that low dose of tryptophan improved learning and memory in rats while high dose significantly impaired spatial and recognition memory, correlating with reduced serotonin and increased kynurenic acid levels. Conversely, tryptophan supplementation at high dose was also accompanied by increased Interleukin-6 (IL-6) expression in brain. These results highlight the dual role of tryptophan in memory regulation—through serotonergic signalling and kynurenine pathway modulation—providing potential therapeutic targets for memory-related disorders such as Alzheimer's and Parkinson's-related dementia.

Key words: tryptophan, memory regulation, serotonin, kynurenine pathway, neuroinflammation, cognitive function

SYNTHESIS, CHARACTERIZATION AND CYTOTOXIX ACTIVITY ON PC3 CELL LINE OF SALICYLALDEHYDE-BASED SCHIFF BASE

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Abstract

Introduction and Purpose: Cancer is a complex pathology that originates in a localized region and has the potential to disseminate to various organs throughout the body via metastasis. Cancer continues to be a major health concern, and projections indicate that the worldwide prevalence of this disease may more than double within the next 20 to 40 years, exceeding cardiovascular disease as the leading cause of mortality [1,2]. There is a considerable need to identify pharmacological agents for the treatment of these diseases. Schiff bases, commonly referred to as azomethines, are a category of chemical entities that emerge from the condensation reaction between primary amines and aldehydes [3,4]. These molecular structures have a plethora of applications across various domains, including biology, medicine, clinical research, pharmacology, and analytical chemistry. These precursor ligands are frequently preferred because of their versatility and the simplicity associated with their synthesis [5]. Aromatic primary amines may also feature supplementary donor functional groups, such as chlorine, bromine, hydroxyl, and methyl, which play a significant role in the enhancement and modulation of biological activities. Schiff bases exhibit anticancer, antimycobacterial, antimicrobial, antidepressant, and analgesic properties [6,7].

Materials and Methods: We synthesized a Schiff base compound by reacting salicylaldehyde with 2,4-dichloroaniline in ethanol. We performed structural characterization of this compound using FTIR, NMR, and elemental analysis and studied its effects on the PC3 human prostate cancer cell line using MTT assay.

Results: We synthesized a Schiff base, 2-{[(2,4-dichlorophenyl)imino]methyl}phenol, to evaluate its biological activities. The synthesis involves the reaction of 2,4-dichloronaniline with salicylaldehyde. The synthesized compound was characterized using elemental analysis, FTIR spectroscopy, and ^{1}H NMR spectroscopy. To evaluate their biological activity, they were tested against the PC3 prostate cancer cell line for 72 h. The Schiff base exhibited biological activity against the PC3 prostate cancer cell line, with an IC_{50} value of 350.30 μM.

Key Words: Cytotoxic Effect; Schiff Base; Prostate Cancer

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SYNTHESIS AND ANTICANCER EVALUATION OF *N*-TOSYLHYDRAZONE COMPOUND

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Abstract

Introduction and Purpose: Cancer has been a predominant and significant contributor to mortality on a global scale since the onset of the twenty-first century, and the economic ramifications of this ailment are both substantial and escalating. The disease can manifest in various organs and systems within the human body at any stage of life, with no definitive etiopathological origin. Among the spectrum of anticancer interventions, chemotherapy has garnered considerable focus owing to its impact on neoplastic cells. However, many anticancer pharmaceuticals are associated with severe adverse effects and toxicity; thus, there is an imperative to discover novel compounds to combat this life-threatening illness [1]. In pharmaceutical design, small organic compounds play a pivotal role and serve as highly bioactive frameworks. The hydrazone functional group, a conspicuous moiety abundantly found in medicinal compounds, has been instrumental in the development of various therapeutic agents. Conversely, the diverse biological and chemotherapeutic properties of hydrazones underscore their significance as salient pharmacophoric feature [2-4]. In particular, sulfonylhydrazones may have potential anticancer, antimicrobial, antifungal, antiurease, antioxidant, and biolocic activities, such as MAO inhibitors [5-8].

Materials and Methods: Sulfonylhydrazone compounds were synthesized and characterized. The reagents used in this study were procured from Sigma-Aldrich, Merck, and Isolab. The melting point was determined using a DMP-600 Melting Point Apparatus. The FT-IR spectrum of the target compound was recorded using an Agilent Cary 630 FTIR spectrometer. ^{1}H NMR spectrum was obtained using a 400 MHz Bruker Avance III spectrometer. The biological activity properties of compound were evaluated in human cancer cell line using MTT assay.

Results: N-tosylhydrazone compound (1) was successfully synthesized and evaluated for its anticancer activity. The structure of the compound was elucidated using FT-IR, 1H NMR, and elemental analysis. The cytotoxicity of the synthesized target compound was evaluated against the human breast adenocarcinoma (MCF-7) cell line.

Key Words: Anticancer Activity; Cytotoxicity; Hydrazone

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2025 WORLD RANKING OF ARTIFICIAL INTELLIGENCE RESEARCHERS

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Abstract

The paper presents the world ranking of Artificial Intelligence researchers for 2025. The ranking is presented primarily according to the researchers' h-index. Researchers with matching h-index are ranked by the number of citations. The minimum h-index of the 15 ranked researchers is 208. The h-index can be determined from the following online databases: Web of Science, Scopus, Google Scholar and the Publish or Perish program. The h-index, also known as the Hirsch index, is based on references. The ranking will be edited using the Google Scholar web database. Google Scholar is Google's scientific search engine, launched in 2004. We also present the Orcid ID number of the researchers.

Key Words: Artificial Intelligence researchers, 2025 world ranking, h-index, citations, Google Scholar, Orcid ID.

A CONCEPTUAL ANALYSIS OF ENTREPRENEURIAL BARRIERS FROM A GENDER PERSPECTIVE

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ABSTRACT

Introduction and Purpose: Entrepreneurship, as a tool for sustainable development, is an important field of study, particularly in developing countries. The study of the gender-specific impacts of entrepreneurship, often addressed in the context of individual performance and economic contributions, is becoming increasingly popular. However, the literature tends to analyze barriers to entrepreneurship based on gender, focusing on women's entrepreneurship rather than a gender perspective. But, in the context of socially constructed roles, these barriers affect both women and men differently.

Materials and Methods: In this context, the study utilizes a conceptual examination of barriers to entrepreneurship within the framework of a Gender Approach.

Results: The study aims to analyze how barriers to entrepreneurship are experienced differently by women and men. This framework is closely related to the continuous reproduction of gender roles in social life, as well as the barriers to entrepreneurship that emerge at the structural, psychological, and socio-cultural levels. In this context, women entrepreneurs face more obstacles such as role conflict and domestic caregiving, the need for social approval, and inability to access structural mechanisms, while men entrepreneurs face less visible psychological and sociocultural barriers such as competitive pressure, the need for success, and emotional pressure. This study aims to contribute to the implementation of sustainable entrepreneurship policies and institutional support mechanisms by systematically revealing the differential and layered effects of these obstacles on women and men entrepreneurs.

Key Words: Entrepreneurship, Barriers to Entrepreneurship, Gender

A HYBRID META-HEURISTIC APPROACH FOR PRODUCTION PLANNİNG OF LIMITED SHELF-LIFE PREPREG MATERIALS AT TAI

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ABSTRACT

Introduction and Purpose: Production planning of composite materials in the aerospace industry is a highly complex optimization problem, requiring simultaneous consideration of material shelf-life limitations, capacity constraints, workforce requirements, and quality assurance conditions. Especially for prepreg materials with limited shelf-life and high cost, efficient planning is critical. Therefore, this study aimed to develop an effective and scalable approach for prepreg composite production planning by integrating exact and metaheuristic methods.

Materials and Methods: The problem was formulated using a Mixed-Integer Linear Programming (MILP) model. MILP was tested on a total of 5 datasets (small, medium, and large), with part numbers ranging from 50 to 600, material types from 5 to 15, and lot numbers from 15 to 105. Optimal solutions were obtained for small-scale datasets and compared with heuristic approaches. For larger datasets, MILP computation time was prohibitive. To address this, a hybrid metaheuristic algorithm combining Genetic Algorithm (GA) and Tabu Search (TABU) was developed to balance solution quality and computational efficiency.

Results: The hybrid algorithm produced solutions with an average 1.3% optimality gap compared to MILP for the three datasets where exact comparison was possible, while providing feasible and scalable results for larger datasets. The approach maintained high solution quality while reducing computation time to practical levels.

Key Words: Composite Production Planning; Prepreg Materials; Mixed-Integer Linear Programming; Genetic Algorithm; Tabu Search; Hybrid Metaheuristic

A READING ON THE GENDER OF ENTREPRENEURSHIP AND WOMEN'S ENTREPRENEURSHIP

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ABSTRACT

Introduction and Purpose: Although entrepreneurship is a universal phenomenon unique to humankind, it also embodies a significant gender dimension. Despite women constituting more than half of the world's population, they own and manage considerably fewer businesses than men across countries. The Global Entrepreneurship Monitor (GEM) has consistently confirmed this disparity through its research findings. The purpose of this study is to explore the underlying factors contributing to this situation.

Materials and Methods: This study is based on an extensive review of the relevant literature.

Results: The literature conceptualizes women's entrepreneurship as an underutilized economic resource, a casualty of gendered industrial culture, a result of insufficient entrepreneurial skills, a means of addressing social issues, and an area requiring active encouragement. However, entrepreneurship can be viewed as a rich and multifaceted tapestry. Therefore, it would be valuable to consider women's entrepreneurship not only as a form of economic production but also through its social dimensions—such as social benefit, environmental sensitivity, and family transformation—and to evaluate it at the intersection of gender and entrepreneurship

Key Words: Entrepreneurship, Women, Women's Entrepreneurship, Gender

STRUCTURAL AND LUMINESCENT STUDIES OF YELLOW EMITTING DY DOPED $CA_2LI_2BI_{(1-X)}V_3O_{12}$ PHOSPHORS FOR DISPLAY DEVICES

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Abstract

This titled work investigates luminescent studies of dy^{3+} dopes $Ca_2Li_2Bi_{(1-x)}V_3O_{12}$ synthesized through conventional high temperature solid state reaction method. XRD confirmed the formation of single phase cubic structure with space group Ia/3d. FTIR spectra exhibited the characteristic vibrational bands corresponding to V–O stretching modes. The optical band gap energies were estimated from diffuse reflectance spectroscopy (DRS) using Tauc plots. Photoluminescence studies revealed that the phosphors can be effectively excited in the broad UV region (250–390 nm), exhibiting a dominant emission peak at 574 nm corresponding to the $^4F_{9/2} \rightarrow {}^6H_{13/2}$ transition of Dy^{3+}. The measured decay lifetime lies in the millisecond range, indicating the suitability of the phosphors for display applications. CIE chromaticity analysis confirmed a yellow emission with a correlated color temperature (CCT) of 3885 K for the optimized sample.

QUALITY ASSURANCE OF RADIOTHERAPY TREATMENT PLANS USING LOG AND DICOM FILES WITH PYTHON AND GAMMA INDEX

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Abstract

Quality assurance (QA) is a crucial step in radiotherapy to ensure that the dose delivered to the patient accurately matches the planned dose. This work aims to develop an independent verification approach for treatment plans based on the extraction and analysis of data from DICOM and Trajectory Log files generated by Varian linear accelerators, using the Python programming language.

The DICOM RTPLAN and RTDOSE files were processed to extract beam parameters, monitor units, and dose distributions. In parallel, the Trajectory Log files were analyzed to retrieve the actual positions of the multileaf collimator (MLC) leaves, the number of control points, gantry rotation speed, and the delivered monitor units for each segment. Data extraction and visualization were performed using Python libraries such as pydicom, numpy, and matplotlib, enabling the automated generation of fluence maps and structured technical parameter tables.

Preliminary results confirm the feasibility of extracting and organizing the necessary data for independent plan verification.

As a next step, a Gamma Index analysis (2%/2 mm and 3%/3 mm criteria) will be implemented to evaluate the dosimetric agreement between planned and delivered data, thus completing the QA process.

This work paves the way for the development of an open-source, automated, and reproducible QA tool for radiotherapy plan verification, contributing to improved treatment accuracy and patient safety.

Keywords: Radiotherapy, Quality Assurance, DICOM, Trajectory Log, Varian, Python, Fluence, Treatment Plan, Gamma Index

ONE OF THE PERFORMANCE INDICATORS: THE REWARD FOR EMPLOYEE EFFORT WITHIN AN ESTABLISHMENT

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ABSTRACT

Based on our professional university experience, our observations, and listening at different scales, we have found that making an effort by an administrative employee, regardless of the nature of their activity or level of specialization, represents an important indicator for human profitability.

Most employees at an organization put in effort towards their work or the completion of a project, but sometimes, unfortunately, they don't achieve their stated objective. Therefore, our goal is to encourage managers to recognize their employees' efforts and provide maximum support, while also offering a reward for that effort.

Rewarding effort is a key performance indicator for a company because it will positively influence the behavior of other employees. Everyone will strive to succeed and be rewarded.

Therefore, implementing parameters to measure an employee's actual effort is considered a major step towards increased productivity and the rapid completion of projects within the organization.

The value of an employee's effort is crucial from a psychological, financial, and cultural perspective.

Understanding and rewarding an employee's effort will resolve many questions within the company and foster competition among all employees, which is essential: creating competition by recognizing and valuing employee effort.

Keywords: effort, employee, company, performance indicator.

UNDERSTANDING THE GLOBAL CANCER LANDSCAPE: A REVIEW OF TRENDS, RISK FACTORS, AND INTERVENTIONS

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Abstract

Cancer is one of the major global health issues, causing millions of deaths annually. Its growing prevalence is increasingly linked to an aging population, rapid urbanization, and exposure to modifiable risk factors. This article explores current trends in cancer prevalence, associated risk factors, and prevention strategies. A comprehensive literature search was conducted using databases, including Google Scholar, ScienceDirect, PubMed, and official sources such as the World Health Organization (WHO) and the Global Cancer Observatory (GLOBOCAN). Approximately 200 relevant publications were initially found. After screening for quality, redundancy, and relevance, 140 articles were preferred for the final review. This finding shows that in recent years, cancer incidence and mortality rates have steadily been higher in males than in females. Between 2018 to 2022, male incidence was 210-222 per 100000 compared to 182.5 to 186.5 in females, while male mortality was 109.5 to 120 per million versus 75 to 84 in females. Lung cancer was one of the most common cancers worldwide and the leading cause of cancer deaths, accounting for about 11.5–12.5% of cases and 18–19% of deaths from 2018 to 2022. Lung, liver, stomach, breast, and colon cancers were the top five causes of cancer deaths. Cancer rates were much lower in children and adolescents, representing 1–2% of all cases, but increased sharply with age. Additionally, the article emphasizes current prevention strategies and global efforts to reduce the cancer burden. Recognizing these trends is essential for developing effective public health interventions and promoting early detection and treatment.

Keywords: prevalence, Lung cancer, prevention strategies

ESTIMATING THE FILM THICKNESS AND COMPLEX INDEX OF REFRACTION BY USING ONLY THE UPPER REFLECTANCE ENVELOPE

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Abstract

Over the last few decades, a large number of research papers on the optical properties of thin films have been published, and significant efforts have been made to supply a mathematical formulation that can describe the transmittance (T(λ)) and reflectance (R(λ)) of various optical systems. Minkov in 2010 suggested a straightforward analysis using the upper (RM) and lower (Rm) envelopes of measured reflectance to estimate the film thickness and complex index of refraction. In 2023 the author Kamal Aly decided that the film thickness and complex index of refraction by using only the lower transmittance envelope. Similarly, in this paper, the author attempts to numerically solving the equation of the upper reflectance envelope to estimate the optical constants of thin films (refractive index (n), absorbance (x). Also, a new analysis to find the film thickness precisely is based on the interference fringes main equation ($2\ nt = m\lambda$).

Keywords: optical properties; thin films, Complex index of refraction

INVESTIGATING THE RELATIONSHİP BETWEEN THE QUALITY OF VIRTUAL EDUCATION WITH LEARNİNG STYLE AND SELF-EFFİCACY OF VİRTUAL GRADUATE STUDENTS IN SHIRAZ UNIVERSITY OF MEDICAL SCIENCES IN THE YEAR 2024

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Abstract

This research aimed to investigate the relationship between the quality of virtual education on the learning style and self-efficacy of virtual senior students (medical education, e-learning, MPH, and community-oriented education) in Shiraz University of Medical Sciences. The statistical population of this research consisted of 686 master's degree students of Shiraz University of Medical Sciences who were studying in the academic year of 2023-2024; 252 students were selected as a sample using random sampling. Kolb's (1999) learning style questionnaires, Bandura's self-efficacy, and virtual education quality questionnaires were used to collect the data.

Data analysis was done using SPSS, SMART_PLS. The findings showed that most students have a convergent and absorbing learning style. Learning style had an effect on self-efficacy. No significant relationship was observed between students' learning style and their field. Also, no significant relationship was observed between learning style and gender, there was no difference between self-efficacy of girls and boys. No significant relationship was observed between the quality of education and self-efficacy and the quality of education and learning style.

Keywords: learning styles, self-efficacy, quality of education, virtual education.

THE RELATIONSHIP BETWEEN FRONT-LINE NURSES' PERCEPTION OF LEADERSHIP WALKROUND AND SAFETY CULTURE IN JEDDAH IN SAUDI ARABIA

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Abstract

Background: Leadership WalkRounds (WR) are structured leadership practices intended to enhance communication, identify safety issues, and develop safety culture. WR is a proactive tool for improving organizational safety culture in healthcare settings, especially when leaders give prompt feedback and take appropriate action. The relationship between WR attitudes and safety culture among Saudi Arabian nurses is not well understood, despite mounting global data. The **Aim** of this study was to investigate how frontline nurses in governmental hospitals in Jeddah, Saudi Arabia, perceived Leadership WalkRounds and safety culture.

Methodology: A cross-sectional, correlational, quantitative, descriptive design was employed. 579 staff nurses from East Jeddah General Hospital and King Abdullah Medical Complex were involved in the study. Two validated tools were used to gather data: the Safety, Communication, Operational, Reliability, and Engagement (SCORE) Survey and the WalkRounds Perception Questionnaire. Strong internal consistency was confirmed by reliability analysis (Cronbach's $\alpha = 0.823$). Multiple regression analysis, Pearson correlation, and descriptive statistics were used in the analysis of the data using SPSS version 25.

Results: All aspects of safety culture, including teamwork climate, local leadership, and safety climate, were found to be significantly positively correlated with nurses' views of WR ($p < 0.05$). Stronger opinions of leadership support, transparent communication, and cooperative safety procedures were shown by units with higher WR feedback and participation.

Conclusion and Recommendation: By encouraging trust, open communication, and teamwork among nursing staff, the successful implementation of Leadership WalkRounds improves the overall safety culture. The findings support Saudi Vision 2030's objectives for quality and patient safety improvement by highlighting the significance of leadership visibility and feedback in enhancing safety outcomes. Regular, well-organized Leadership WalkRounds with prompt feedback and obvious follow-up activities should be implemented by hospitals. Saudi Vision 2030's objectives for quality and patient safety will be supported by training leaders in effective communication and accountability, which will enhance teamwork, trust, and safety culture.

Keywords: Leadership WalkRounds, safety culture, frontline nurses, Saudi Arabia, hospital leadership, patient safety.

ANTIBIOTIC-RESISTANT BACTERIA IN THE FOOD CHAIN: MOLECULAR DETECTION AND CONTROL STRATEGIES

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ABSTRACT

Introduction and Purpose: The growing occurrence of antibiotic-resistant bacteria in food products is an increasing concern for global public health and food safety. This systematic mini review aims to summarize current knowledge on the detection, distribution, and control of resistant bacteria in the food chain, emphasizing molecular approaches as key tools for surveillance and risk management.

Materials: and Methods: A systematic search was performed in PubMed, Scopus, and Web of Science for articles published within the last five years. Studies focusing on molecular identification of antibiotic resistance genes in meat, dairy, and fresh produce were included. Extracted data were analyzed to identify trends in gene prevalence, critical control points, and preventive interventions.

Results: Current research consistently demonstrates the presence of resistance genes such as *blaTEM*, *tetA*, and *mecA* in various foodborne bacteria. Molecular tools, particularly PCR and quantitative PCR, provide accurate and rapid identification of these genes. Risk analyses highlight processing and storage as critical stages where contamination is most likely, indicating that well-targeted preventive strategies can significantly reduce transmission risk.

Conclusion: Molecular monitoring of antibiotic-resistant bacteria offers essential insights for improving food safety and protecting public health. The findings of this review reinforce the importance of systematic surveillance throughout the food chain and support the One Health approach to limiting the spread of antimicrobial resistance.

Key words: Antibiotic resistance; Food safety; Molecular detection; PCR; One Health

GREEN SYNTHESIS OF PLASMONIC Ag-AgBr/TiO_2/CELLULOSE BİOCOMPOSITE WITH ENHANCED VISIBLE PHOTOCATALYTİC PERFORMANCE

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ABSTRACT

The development of a bio-composite material with photocatalytic properties, using a natural material such as cellulose, is an important issue in the field of environmental sustainability. In this work, Ag-AgBr/TiO_2/cellulose biocomposite was prepared in a two-step process at a moderate temperature. The first step involved coating the cellulose structure with TiO_2, followed by the second step where Ag-AgBr was deposited onto the TiO_2/cellulose via an immersion method. The successful loading of both Ag-AgBr and TiO_2 onto the cellulose matrix was confirmed by Raman spectroscopy, XRD, and XPS. Scanning electron microscopy (SEM) images further demonstrated that the cellulose matrix was coated with a TiO_2 layer decorated with Ag-AgBr nanoparticles. Photometric measurements showed that the resulting biocomposite material exhibits enhanced visible light absorption and high charge separation efficiency, thanks to the synergistic interaction between the Ag-AgBr and TiO_2. The developed biocomposite demonstrated high activity in removing the carcinogenic compound aniline from water. It also completely removed alcoholic gases from the air. Furthermore, it proved effective in killing pathogenic bacteria (*Escherichia coli*). The superior performance of this biocomposite can be attributed to its unique properties, such as charge separation, high visible light absorption, and its pure and homogeneous structure. This study presents a promising new strategy for preparing a highly efficient, sustainable, and multifunctional biocomposite material for environmental and biological applications. This work represents the first of its kind in utilizing the Ag-AgBr/TiO_2/cellulose material as a multifunctional and sustainable biocomposite.

Keywords: Ag-AgBr/TiO_2/cellulose; Sustainable biocomposite; Water treatment; Air purification; Antibacterial property.

APPLICATION OF BIOINFORMATIC TOOLS IN CELL TYPE CLASSIFICATION FOR SINGLE-CELL RNA-SEQ DATA

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Abstract

The advancements in single-cell RNA sequencing (scRNAseq) technology have significantly transformed geno-mics research, enabling the handling of thousands of cells in each experiment. As of now, 32,068 research studies have been cataloged in the Pubmed database. The primary aim of scRNAseq investigations is to identify cell types, understand the antitumor immune response, and identify new and uncommon cell types. Traditional techniques for identifying cell types include microscopy, histology, and pathological characteristics. However, the complexity of instruments and the need for precise experimental design make it difficult to fully capture the overall heterogeneity. Unsupervised clustering and supervised classification methods have been used to solve this task. Supervised cell type classification methods have gained popularity as large-scale, high-quality, well annotated and more robust results compared to clustering methods. A recent study showed that support vec-tor machine (SVM) gives a high-quality classification performance in different scenarios. In this article, we compare and evaluate the performance of four different kernels (sigmoid, linear, radial, polynomial) of SVM. The results of the experiments on three standard scRNA-seq datasets indicate that SVM with linear and SVM with sigmoid kernel classify the cells more accurately (approx. 99 %) where SVM linear kernel method has remarkably fast computation time and we also evaluate the results using some single cell specific evaluation matrices F-1 score, MCC, AUC value. Additionally, it sheds light on the potential use of kernels of SVM to give underlying information of single-cell RNA-Seq data more effectively.

Keywords: scRNAseq, Cell type, Classification, Support vector machine (SVM), Kernel functions.

IDENTIFYING KEY INFLUENCERS OF PATIENT SATISFACTION USING AN EXPLAINABLE MACHINE LEARNING APPROACH

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Abstract

Background: Patient satisfaction is a crucial measure of healthcare quality, influencing both health outcomes and care experiences. This study aims to identify the factors influencing patient satisfaction in healthcare facilities using machine learning algorithms due to their strong predictive capabilities.

Methods: A cross-sectional survey was conducted with 312 patients from two private hospitals in Rangpur, Bangladesh. Machine learning models, including LightGBM, Random Forest, XGBoost, and CatBoost, were used to predict patient satisfaction, and SHAP value analysis was employed for interpretation.

Results: The LightGBM classifier (before SMOTE) outperforms other models across metrics, with the highest accuracy, MCC, and ROC-AUC scores, establishing it as the optimal predictive model for this study. SHAP analysis further reveals that factors such as treatment plan, age, appointment ease, waiting time, and medication details significantly influence satisfaction levels. Overall, results indicate that structured interactions, shorter waiting times, and clear communication are associated with higher satisfaction, while extended waiting times and lack of decision involvement negatively impact patient experiences.

Conclusion: To enhance patient satisfaction, healthcare providers should prioritize improving communication, reducing wait times, and offering clear treatment plans. Future research should explore additional factors to refine predictive models. The LightGBM classifier provides valuable insights into the key determinants of patient satisfaction, enabling healthcare practitioners and researchers to utilize it for targeted prediction and analysis in their specific contexts.

Keywords: Patient satisfaction, machine learning, Bangladesh, LightGBM, SHAP, Review Article

BIOCONTROL MEASURES FOR CATTLE TICK

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Abstract

Aspergillus flavus is a fungus which is saprophytic pathogen and is an insect- pathogenic fungi against many types of arthropods. Specifically, in cattle tick (*Rhipicephalus microplus*), fungal infection has a biocontrol property. *Rhipicephalus microplus* is an essential ectoparasite for the bovine cattle population in humid and temperate cattle-grazing areas throughout the world. Cattle tick causes direct damage to bovines, like skin lesions, anemia, irritability, weight loss, immunosuppression and reduced milk yield. Besides, during the parasitic stages, *R. microplus* may transmit anaplasmosis and babesiosis, causing additional economic losses in bovine production by increasing abortions, veterinary care costs and fatalities. Due to various effects on cattle population by *Rhipicephalus microplus* tick, it is mandatory to detect specific virulent gene of *Aspergillus flavus*. Because cattle tick can be predominantly affected by *A. flavus* fungi. If infection causing virulent gene can be identified, then it will be easier to produce effective biopesticide to treat the bovine population suffering from mild, acute or chronic infection by the ticks. Another thing is that cattle tick infection can be minimized for long lasting period by the assessment of biological control of *Rhipicephalus microplus* tick. Biocontrol agent is a beneficial living organism which is used to biological control of ectoparasites (ticks) rather than using of chemical pesticides. They are more effective and long lasting for ectoparasite control in livestock population. In this review article, a proposed research has been described to detect specific strain of *Aspergillus flavus* and to discover a biopesticide as like as fungal isolation, morphotype detection, isolation of DNA, molecular detection, genome sequencing, bioassay and data analysis.

Keywords: Cattle tick; Babesiosis; Anaplasmosis; Biocontrol agent; Biopesticide; Fungal isolation; Morphotype identification; DNA isolation; Polymerase Chain Reaction; Genome sequencing; Bioassay; Data analysis.

ASSESSMENT OF HEMATOLOGICAL AND BIOCHEMICAL ALTERATIONS FOLLOWING PLASMA TRANSFUSION IN GOATS

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Abstract

Introduction/ Background: This study investigated the clinical and hematological responses of plasma transfusion and hematinic administration in severely anemic goats.

Objective: To investigate the clinical, hematological and biochemical response of plasma transfusion and hematinic administration in severely anemic goats.

Methodology: The blood profile of the recipient goats was assessed for hematological parameters: Total Erythrocyte Count (TEC), Total Leukocyte Count (TLC), Hemoglobin (Hb), Packed Cell Volume (PCV), Neutrophil, Eosinophil, Lymphocyte, Monocyte, Electrolytes and Biochemical parameters: Alanine Transaminase (ALT), Aspartate Transaminase (AST), Creatinine and Total Protein (TP) before and after (1^{st}, 7^{th}, 14^{th}, 21^{th}, 28^{th} days) treatment with plasma transfusion or hematinic administration.

Results: In plasma transfusion group (Group A), TEC, PCV, Hb, ALT, AST and TP were increased significantly ($p < 0.01$) at 1^{st}, 7^{th}, 14^{th}, 21^{th}, 28^{th} days of post-transfusion in comparison to pre-transfusion values. In the hematinic group (Group B), two patients died treated with hematinic drugs due to severe anemia. However, no significant changes ($p > 0.05$) in clinical parameters, electrolytes (K^+, Na^+ and Cl^-) levels and creatinine values were observed in recipient goats after plasma transfusion and hematinic administration. After 28 days of treatment, all patients of plasma transfusion group (100%) and three in hematinic treatment group (60%) were recovered successfully.

Conclusions: The plasma transfusion was found superior to hematinic administration to upgrade the hematological and biochemical parameters in anemic goats. It did not produce any adverse reaction in the recipient goats. Plasma transfusion could be an effective tool for the clinical management of anemic goats.

Keywords: Plasma transfusion, Anemia, Hematological, Biochemical, Goats

SALT EFFECT ON NANOPORE SHAPE FOR SENSITIVITY IMPROVEMENT

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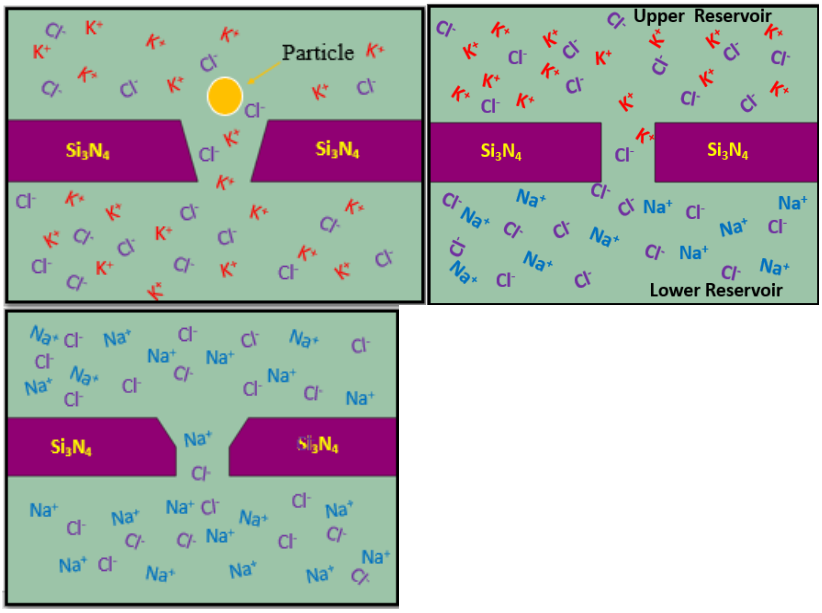
Abstract

A nanopore is a nanoscale hole created in a solid or biological substrate, known for its excellent sensing capabilities in detecting heavy metals, DNA, and lipids. In this study, nanopore sensitivity was analyzed using COMSOL Multiphysics simulation software. The nanopore size was 25×25 nm, made of silicon nitride (Si_3N_4), and three shapes conical, funnel, and cylindrical were considered. KCl, NaCl, and their combination (KCl/NaCl) were used as electrolytes with a 2 M concentration, and each reservoir measured 2×1 µm. The conductance remained the same for identical salt solutions but varied under positive and negative voltages when mixed salts were used. Among all designs, the cylindrical nanopore with KCl/NaCl exhibited the highest sensitivity, showing 29.6% improvement over the conical and 9.7% over the funnel-shaped nanopore.

Keywords: Comsol, Nanopore,Conical.



SPATIAL MODELING TO REVEAL DIABETES HETEROGENEITY IN BANGLADESHI WOMEN: EVIDENCE FROM BDHS-2022 DATA

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Abstract

Diabetes has significantly emerged as a major growing public health concern of Bangladeshi women from the last decade. This study revealed district-wise spatial distribution and clustering of diabetes among Bangladeshi women and investigate the spatial environmental dependencies on its prevalence. We employed women's diabetes prevalence from the BDHS-2022 dataset and visualized spatial autocorrelation using Global and Local Moran's I statistics. To assess spatial dependence, we employed the OLS Regression, Spatial Lag Model, and Spatial Error Model by incorporating environmental covariates. The Akaike Information Criterion (AIC), likelihood ratio test and residual spatial autocorrelation are utilized for model selection and performance assessment. About 16.77% of women's diabetes prevalence showed significant spatial clustering (Global Moran's $I = 0.22, p < 0.01$) with high prevalence hotspots identified in the Dhaka, Chattogram, and Khulna metropolitan cities. Spatial regression revealed greater urbanization ($SLM\ \beta = 0.63, SEM\ \beta = 0.74;\ p < 0.001$) and literacy level ($SLM\ \beta = 0.28, SEM\ \beta = 0.31;\ p < 0.001$) for positively while minimum temperature ($SLM\ \beta = -2.20, SEM\ \beta = -2.59, p = 0.05$) for negatively correlated diabetes prevalence. The SLM exhibited a better fit with notable spatial dependence explaining 26% ($p < 0.001$) the variation through neighboring districts. This study exhibits urbanization, literacy rate, and environmental factors are all linked to spatial dependency in diabetes among Bangladeshi women, highlighting the need for region-specific spatial interventions to optimize resources and improve national diabetes management.

Keywords: Diabetes, Spatial modelling, BDHS, Spatial disparities

A RISKY COPING MECHANISM: WHEN MIGRATION BECOMES A NECESSITY, NOT A CHOICE

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Abstract

Climate change aggravated the risk of regular cyclones, floods, salinity, and river erosion in the coastal and northern districts of Bangladesh, which have seriously influenced agriculture, food, and livelihood. In this situation, migration is the coping mechanism for most of the families. Data were collected for this research from 380 families (136 migrant and 244 non-migrant) of eight sub-districts under the Satkhira, Khulna, Bagerhat, and Kurigram districts. The information was gathered through the Household Food Insecurity Access Scale (HFIAS) and qualitative information was also gathered through FGDs (Focus Group Discussions) and KIIs (Key Informant Interviews). The results reveal that migrant households have a comparatively higher propensity towards resilience and seeking alternative livelihoods, and they are also connected with early warning systems. However, this type of relocation is highly reactive, transient, and unpredictable, hence an unsustainable long-run strategy. At the same time, the non-movers are more vulnerable to food poverty and poverty since they are dependent on conventional agriculture. In general terms, migration is a survival strategy in the short run but does not guarantee adaptation over the long run. Therefore, the significance of strengthening climate-resilient agriculture, diversifying livelihoods, and enhancing disaster preparedness at local levels should be underscored. It will render migration an opportunity-based and informed option rather than being forced.

Keywords: Climate change; Migration; Food insecurity; Coping strategies; Resilience; Bangladesh; Livelihoods; Adaptation.

FIRST-PRINCIPLES STUDY OF THE SPINTRONIC POTENTIAL OF THE RARE-EARTH-BASED HALF-HEUSLER COMPOUND FECEBI

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Abstract

Systematic theoretical research of the half-Heusler compound FeCeBi is carried out using first-principles calculations on density functional theory (DFT) here. Three candidate crystal structures are studied, of which it is found that the ground-state most stable configuration is the α-phase in the ferromagnetic (FM) state. Electronic band structure computations verify that FeCeBi is an ideal half-metal with a semiconducting gap in the spin-up channel and metallic behavior in the spin-down channel, and hence, it is highly promising for spintronic devices. Elastic properties such as elastic constants (C11, C12, and C44) confirmed mechanical stability based on Born-Huang criteria. Other mechanical indicators, such as the ratio B/G and Poisson's ratio, indicate a good balance of ductility and stiffness. Additionally, the electronic structure is determined to be structurally deformed sensitive; when compressed, the bandgap expands, while it reduces with dilatation. This tunability makes it easy to adapt FeCeBi to specific applications. Optical study reveals spin-dependent effects, further confirming the compound's asymmetric half-metallic character. Generally, the results demonstrate that FeCeBi is a very suitable material candidate for future spintronic and multifunctional device technologies.

Keywords: Half-Heusler FeCeBi; First principles; Mechanical properties; Dilatation and compression; Optical properties; Thermodynamic properties.

SNS-LIGANDED RHODIUM (I) COMPLEX AS AN EFFICIENT CATALYST FOR CO_2 FIXATION IN BOTH ATMOSPHERIC AND REACTOR ENVORIMENT

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ABSTRACT

Introduction and Purpose: An overabundance of energy has been produced by the ongoing industrialization of civilization and the expansion of the world's population. Currently, around 85% of this energy demand is met by fossil fuels with substantial carbon footprints, such as coal, crude oil, and natural gas. Many efforts have been made in the last 10 years to develop physical and chemical methods for effectively extracting carbon dioxide. Utilizing the excess carbon dioxide in the atmosphere as a carbon feedstock and developing sustainable methods to convert it into compounds with extra value are crucial for addressing environmental issues. Direct catalytic coupling of CO_2 with epoxides is one of the finest ways to create five-membered cyclic carbonates since it employs all of the atoms and yields nearly any kind of byproduct. The goal of this research is to transform carbon dioxide gas, which contributes to global warming, into atmospheric products that are beneficial.

Materials and Methods: The synthesis of cyclic carbonates from CO_2 with epoxides was carried out by adding rhodium(I) complex bearing SNS ligand ($4.5x10^{-5}$ mol), epichlorohydrin ($4.5x10^{-2}$ mol) and Dimethylaminopyridine (DMAP) ($9x10^{-5}$ mol) as catalysts into a 25 mL stainless steel reactor for the reactor system and into the Schlenk system for the atmospheric environment. Isolated yields were calculated with GC (Agilent 7820 A) device.

Results: Rhodium (I) complexes with SNS ligands were employed as catalysts in this investigation. Rhodium (I) complex carrying SNS ligand compound was employed as a catalyst in the conversion of CO_2 to cyclic carbonate with epichlorhydrin, and its efficacy was examined in both the atmospheric and reactor environments. The effect of rhodium(I) complex bearing SNS ligand catalyst on the conversion was investigated in both ambients.

Discussion and Conclusion: This rhodium(I) combination with SNS ligand is atmospheric yield of 41.5% is also quite good novel in the literature.

Key Words: SNS pincer Catalysts; Rh(I) complexes; Cyclic carbonate; CO_2 fixation

DID THE FLOW RATE OF THE POPLITEAL ARTERIOVENOUS FISTULA DETERMINE THE ANESTHETIC TECHNIQUE?

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ABSTRACT

Introduction and Purpose: Popliteal arteriovenous fistulas (PAVFs) are rare but clinically significant vascular complications that may develop after percutaneous interventions. High-flow shunts can increase cardiac preload and intraoperative bleeding risk, directly influencing anesthetic management. This report presents the anesthetic approach in an iatrogenic high-flow PAVF case, emphasizing how the extreme shunt rate guided the anesthesia choice.

Materials and Methods: A 35-year-old male developed an iatrogenic PAVF two years after a percutaneous intervention for deep vein thrombosis recanalization. The patient presented with progressive leg swelling, redness, and pain. Repeated endovascular repair attempts failed, and open surgical correction was planned. A palpable thrill was detected over the popliteal region, and Doppler ultrasonography estimated the flow rate above 1000 mL/min. Due to the high shunt flow and risk of hemodynamic instability, regional anesthesia was avoided, and general anesthesia was chosen. Four units of packed red cells and four units of fresh frozen plasma were prepared preoperatively. Invasive arterial monitoring and two 16-gauge venous lines were inserted, with close follow-up of hemodynamics and blood gases.

Results: The procedure was completed successfully under general anesthesia. The total blood loss was about 1000 mL, and one unit of packed red blood cells was transfused. The patient was extubated postoperatively and transferred to the intensive care unit with stable vital signs. Recovery was uneventful.

Discussion and Conclusion: In high-flow PAVF cases, anesthetic planning must consider fistula flow and bleeding risk. General anesthesia provides better control of hemodynamics and blood loss compared to regional techniques. The flow rate of the fistula may be a decisive factor in selecting anesthesia type for open vascular repair.

Key Words: Popliteal arteriovenous fistula; anesthesia management; general anesthesia; high-flow shunt; vascular surgery.

STUDY ON THE SEPTIC HERMITE COLLOCATION METHOD FOR THE EQUAL-WIDTH WAVE EQUATION

This study is supported by Inonu University Scientific Research Project with project number FDK-2023-3402.

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ABSTRACT

Whether biological or mechanical in nature, neraly every phenomenon occurring in the natural world can be mathematically represented by either algebraic or differential equations that relate various physical quantities in accordance with the laws of physics. In the scientific literature, such equations are generally classified as either linear or nonlinear. However, it is not always possible to obtain an exact analytical solution for every equation under consideration. Consequently, numerical methods have emerged as essential alternatives for approximating the solutions of such equations. Through the application of a numerical method, a given differential equation can be transformed into a system of algebraic equations that can be efficiently solved using modern high-performance digital computers. Among the wide range of numerical techniques employed for solving differential equations, the finite element method (FEM) occupies a prominent and important position. This method is founded on the principle of discretizing the entire solution domain into smaller subregions (that is, elements) and seeking approximate solutions within each subregion, rather than over the entire domain simultaneously. A survey of the existing literature indicates that numerous fundamental numerical approaches have been employed historically to obtain approximate solutions. In recent years, Hermite basis functions have gained attention for their flexibility and accuracy in such applications. In the present study, we aim to determine the approximate solution of a second-order differential equation that possesses an exact analytical solution, employing septic Hermite B-spline basis functions within the framework of the finite element method. The performance and accuracy of the proposed scheme will be evaluated through five test problems, and the resulting approximate solutions will be presented in the form of tables and graphical representations, followed by a comparative analysis with those of existing results reported in the literature.

Key Words: Equal Width Wave Equation; Collocation Finite Element Method; Hermite Basis functions.

ENCAPSULATION OF AMOXICILLIN INTO THERMALLY TREATED CLINOPTILOLITE-BASED ZEOLITE-ALGINATE MICROPARTICLES WITH IONIC GELATION

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ABSTRACT

Introduction and Purpose: Zeolite-based drug delivery systems have recently gained popularity due to zeolite's desirable properties. Furthermore, hydrogels are a type of biomaterial that is commonly used in medical applications due to their biocompatibility and biodegradable properties. So, the main goal of this study is to create novel biomaterials by inserting drug-loaded zeolite into hydrogels by microencapsulation to further improve drug delivery control.

Materials and Methods: Amoxicillin (AMOX) was selected as the research drug. Thermally treated clinoptilolite-based zeolite was loaded with the drug. Then, it was encapsulated in the alginate by ionic gelation method. The ionic gelation system was designed modelled and optimized with Face Centered Central Composite design (FCCCD) of Response Surface Method (RSM). The independent variables were zeolite/biopolymer ratio (0.5-2 w/v), sodium alginate concentration (1-2%, w/v), calcium chloride concentration (2-15%, w/v), and crosslinking duration (10-30 min), while encapsulation efficiency (EE) was the response.

Results: EE of amoxicillin-zeolite microparticles changed between 0.9% and 76.2%, showing that the yield was affected significantly depending on the process parameters. This result was also identified by the analysis of variance (ANOVA) test. The selected parameters were found statistically significant ($p<0.0001$). The optimum encapsulation conditions were determined as 0.97 of zeolite/alginate ratio (w/v), 1.46% of alginate concentration, 3.08% of gelling medium concentration and ~12 min of time to get the maximum EE (81.52%).

Discussion and Conclusion: The current study showed that ionic gelation using sodium alginate and thermally treated clinoptilolite-based zeolite is a promising method for AMOX encapsulation. Based on the FCCCD of RSM, the derived model predicted the optimal conditions with high yield (<2% error).

Key Words: Antibiotics; microencapsulation; clinoptilolite-based zeolite; Response surface methodology.

THE REPRESENTATION OF FEMALE COMPOSERS OF TURKISH MUSIC IN ACADEMIC RESEARCH

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ABSTRACT

Introduction and Purpose: Female composers in the Turkish music tradition have made significant contributions to both composition and performance, spanning from the Ottoman court environment to the Republican era. However, throughout history, they have been addressed only marginally in academic research. Although the works of composers such as Leyla Saz, Dilhayat Kalfa, Neveser Kökdeş, and Melahat Pars have been analyzed in the literature, the number of such studies remains limited. This gap highlights the need to enhance the visibility of female composers within the historical narrative of Turkish music. In this context, it is essential to emphasize the historical and cultural significance of female composers through scholarly inquiry. The primary aim of this paper is to examine how female composers of Turkish music are represented in academic studies and to analyze the content of these studies.

Materials and Methods: This study employs the document analysis method. A literature review identified a total of 17 academic studies focusing on female composers in the field of Turkish music. These studies were analyzed using content analysis, taking into account historical context, individual composers, and musical contributions. During the analysis process, key findings from each study were summarized, and their impact on the visibility of female composers in music history was evaluated.

Results: The findings reveal that female composers remain underrepresented in academic literature, with most studies focusing on a limited number of examples. This narrow approach hinders a comprehensive understanding of the role of female composers in music history. Therefore, it is necessary to adopt a broader perspective in the study of Turkish music history and to conduct more extensive analyses of female composers' creative output.

Key Words: Turkish Music; Female Composers; Academic Research

DEVELOPMENT OF A SPIRAL HEATED WIRE BREATHING CIRCUIT

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ABSTRACT

Introduction and Purpose: During mechanical ventilation in intensive care, breathing circuits are used to deliver air/oxygen from the ventilator to the patient and to return the patient's exhaled air to the atmosphere. The air exiting the device during mechanical ventilation is dry and cold. Cold and dry air disrupts the function of the ciliated cells in the mucosa and causes secretions to accumulate. Breathing cold and dry gas is one of the causes of hypothermia. Therefore, in patients receiving mechanical ventilation support and undergoing anesthesia in intensive care units in hospitals, it is very important that the gases breathed are at appropriate temperature and humidity levels to preserve the physiological functions of the respiratory tract. The aim of the study is to provide homogeneous heat distribution and humidification in the gas flow reaching the patient using spiral heater coil breathing circuits.

Materials and Methods: Heated breathing circuits with heating wires of different lengths and diameters have been developed for adult, pediatric, and neonatal patient groups. The resistance values of the wires to be used in different patient groups have been determined according to tidal volume calculations. The necessary tests have been performed to prove the compliance of spiral heated breathing circuits with the standards titled ISO 80601-2-74, ISO 60601-1, and ISO 60601-1-2. Biocompatibility tests have been performed to prove that the circuits do not cause any side effects or allergic reactions when they come into contact with the patient's body, and their suitability has been proven.

Results: The developed spiral heater wire breathing circuits ensure that the air coming out of anesthesia and ventilation is heated and humidified in a homogeneous manner. Compared to circuits with flat heater wires and those without heater wires, lower condensation levels were observed.

Key Words: Heated Wire; Breatingh Circuits; Mechanical Ventilation.

NEXT GENERATION MOF-BASED SYSTEMS FOR CIPROFLOXACIN REMOVAL AND EMERGING WATER CONTAMINANT TREATMENT

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Abstract

Water contamination by emerging pollutants, including pharmaceutical residues, dyes, and agricultural chemicals, among these pollutants, antibiotics such as ciprofloxacin have attracted increasing concern due to their persistence, toxicity, and contribution to antimicrobial resistance has become a critical concern for environmental sectors [1]. Recent advances in material science have positioned Metal Organic Frameworks (MOFs) as auspicious materials for water purification applications. Owing to their tunable porosity, large surface area, and chemical versatility, MOFs exhibit exceptional adsorption and catalytic properties for the removal of organic and inorganic pollutants [2]. This work presents an overview of the synthesis, structural features, and performance of MOFs as advanced functional materials for promoting water

treatment efficiency. Particular attention is given to MOF-based composites and their integration with photocatalytic and electrochemical systems to enhance the degradation of persistent contaminants. Furthermore, the potential of green synthesis routes utilizing bio-based linkers, such as gallic acid, is discussed as a sustainable approach that aligns with circular economy principles. Overall, MOFs offer a powerful platform for developing next-generation treatment systems that ensure cleaner water resources, improved sustainable environmental protection.

Keywords: Metal–Organic Frameworks, Water Treatment, Photocatalysis, Environmental Remediation, Green Chemistry

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DYEING OF CELLULOSIC FABRIC WITH TURQUOISE BLUE DYE

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Abstract

The role of microwave radiation is increasing day by day practically in textile for saving cost, energy and time. This study has been concerned with the improvement in coloring behavior of cotton with turquoise blue dye under MW treated. Radiation. The MW radiation time has given to both dye and fabric upto 4 minutes whereas the dyeing levels have been selected by using various levels of time, temperature, pH, salt. It has been found that excellent color strength upto 24.39 was achieved when fabric has radiated for 2 minutes for dyeing with non-radiated dye solution at 45 C^{o} for 60 minutes using dye bath of 7 pH having 6g/100mL of salt as exhausting good. The shade s made at selected radiation and dyeing conditions were assessed as per ISO standard for light and washing that were found good as per grey scale ratings. It is inferred that MW radiation can be used in dyeing of cotton with turquoise blue dye under mild conditions with effective shade fastness.

Key words: Cotton, Color strength, Microwave, Turquoise blue dye

MODELING AND OPTIMIZATION OF PHENOLIC-RICH QUINCE LEAF EXTRACT THROUGH HYDROALCOHOLIC EXTRACTION

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ABSTRACT

Introduction and Purpose: Quince (*Cydonia vulgaris*) leaves are rich in phytochemicals rich in phenolics and flavonoids. So, the recovery of these actives is of great importance. The purpose of this study is to design, model and optimize a three-factor and three-level extraction system to maximize total phenolic content (TPC), total flavonoid content (TFC) and antioxidant activity in the quince leaf extract.

Materials and Methods: An automatic solvent extraction (ASE) system was used for the recovery of the quince leaf extract, while the solvent was hydroalcoholic mixture selected for its eco-friendly property and efficient extraction of polar phenolics. Box-Behnken design was applied with three coded factors including immersion time (A: 10-30 min), solvent concentration (B: 20-80% v/v) and solid mass (C: 0.5-1.5 g) by means of Minitab statistical software. The dependent variables (responses) were TPC, TFC and antioxidant activity values of the extract. Antioxidant activity was measured based on the scavenging activity of the extract against DPPH free radical. The measurements were repeated 3 times (mean±standard devaiation). Desirability-based multi-response optimization produced the optimal operating point.

Results: All three responses were well described by quadratic models with strong fits. In case of TPC, R^2=98.55%, R^2(adjusted)=96.68% and R^2(predicted)=90.78%. Considering TFC, R^2=98.71%, R^2(adj)=97.06% and R^2(pred)=84.14%. Regarding the antioxidant activity model, R^2=99.97%, R^2(adj)=99.94% and R^2(pred)=99.66%. According to the Pareto analysis, the solid mass and its quadratic effect (C^2) were the most influential factors for all responses, followed by the interaction between solvent concentration and solid mass (BC). The optimum (desirability = 0.976) occurred at 16.262 min, 80% ethanol and 0.5 g sample. This point yielded experimental/estimated responses as 261.156/262.311 mg-GAE/g-DM of TPC, 246.745/247.503 mg-CE/g-DM of TFC and 37.854/38.967 mg-TEAC/g-DM of antioxidant activity.

Discussion and Conclusion: Quince leaves have been shown to be good source of antioxidant phenolics. Furthermore, the optimized conditions gave high extraction efficiency with satisfactory model fitting. These findings provide basic information basis for future kinetic and scale-up studies.

Key Words: Quince leaves; Box-Behnken design; antioxidant capacity; process optimization.

RECOVERY OF HIGH-VALUE BIOACTIVE COMPOUNDS FROM OLEASTER LEAVES VIA AGITATED SOLVENT EXTRACTION: A CHEMOMETRIC AND MULTI-PARAMETER OPTIMIZATION STUDY

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ABSTRACT

Introduction and Purpose: Oleaster (*Elaeagnus angustifolia L.*) leaves contain phenolic compounds with strong antioxidant activity. In this study, these compounds were extracted using a water-ethanol mixture in a shaking water bath, where solid mass, temperature, and solvent concentration were tested as process parameters. A chemometric approach involving Pareto chart evaluation and statistical analysis was used to examine how the factors influenced extraction performance and to determine the most efficient conditions.

Materials and Methods: Extractions were carried out in a shaking water bath (Weightlab Instruments WF-SBC30) at 100 rpm for 1 h. The effects of solid mass (0.1–0.3 g), temperature (25-65 °C), and solvent concentration (20-80 %, v/v) were evaluated using a Box-Behnken design. Total phenolic content (TPC), total flavonoid content (TFC), and antioxidant activity (DPPH assay) were used as response variables, while the ABTS assay was additionally performed to compare antioxidant capacity. Chemometric and statistical evaluations were applied to assess the data and identify optimal conditions.

Results: Extraction efficiency was strongly influenced by process variables. Pareto analysis showed that solvent concentration had the greatest effect on TPC, while the interaction between solid mass and temperature (AB) was dominant for TFC and DPPH. The models were highly reliable ($R^2 > 0.98$). Optimum conditions were 0.108 g solid mass, 65 °C, and 32.93 % ethanol, with a desirability of 0.986. PCA showed that the first two components accounted for over 98 % of the total variance, reflecting the strong association among responses.

Discussion and Conclusion: Oleaster leaves were confirmed as a rich source of phenolic antioxidants. The optimized process achieved high efficiency, while chemometric analysis clarified variable effects and supported the improvement of green extraction design.

Key Words: Oleaster leaves; chemometrics; Box–Behnken design; Pareto analysis; PCA; antioxidant capacity.

UNDERSTANDING THE CLIMATE CHANGE DRIVERS AND THEIR IMPACT ON FOOD SECURITY

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Abstract

Nowadays, climate change presents a complex global challenge for quite some time. This has brought enormous risks to food security. They stem from the combined impact of natural drivers on the one hand, and human-induced drivers on the other. These forces disrupt agriculural productivity and disrupt the stability of food systems. Solar variability, volcanic activity, and ocean–atmosphere interactions are the natural drivers behind broad changes in climate over the ages. But the rapid climatic variations observed over recent decades are above all attributed to human activities such as the release of greenhouse gases, industrialization, and deforestation. These factors aggravated global warming, engendered feedback loops like the ice–albedo effect and permafrost thawing, and thereby exacerbated the rise in temperature.

Its effects spread across all four aspects of food security: availability, access, utilization, and stability. Yields are lost due to extreme weather, pests, and diseases. The result is that food becomes less available. Both the disruption of supply chains and inflation squeeze economic access to food. This disproportionately affects the weaker sections of the population. The nutritional quality of crops will decline because of higher levels in the atmosphere. So food becomes less utilizable.Having to deal with climate disasters and lower availability of food internationally will disrupt global supply chains.

Integrated and forward-looking solutions are needed to deal with this set of challenges. For example, investment in such innovations as climate-resilient crop varieties, without letting go of traditional respect for the rhythms of nature, can make agricultural productivity under variable conditions survive it all. The benefits of technical training, financial support and insurance programmes for farmers are begin to taken seriously by communities in need of increased durability. World trade policy has to see that low-income countries gain their fair share of food supplies even amidst sudden climate shifts Internationally cooperative strategies for the reduction of emissions and centered on renewable resources remain of great importance.

Key Words: Climate Change; Food Security; Natural and Human Drivers; Agricultural Productivity; Global Warming and Feedback Loops; Sustainable Adaptation Strategies

EFFECT OF SEAWEED ENRICHED HUMIC ACID ON GROWTH AND YIELD OF BT. BRINJAL (SOLANUM MELONGENA L.)

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Abstract

Bt. brinjal (*Solanum melongena* L.), a member of the Solanaceae family, is an economically important vegetable crop cultivated worldwide across tropical, subtropical, and warm temperate regions. It has been genetically developed to resist lepidopteran pests, particularly the Brinjal Fruit and Shoot Borer (*Leucinodes orbonalis*), through the expression of *Bacillus thuringiensis* (Bt) toxin that forms pores in the insect's digestive system. In Bangladesh, where brinjal is locally known as "Begoon," it ranks second only to potato in acreage and production. The present study evaluated the effect of seaweed-enriched humic acid on the growth and yield of Bt. brinjal using a Randomized Complete Block Design (RCBD) with three replications. Four treatments were applied: T_0 (control), T_1 (recommended fertilizer), T_2 (10 kg seaweed-enriched humic acid ha^{-1}), and T_3 (20 kg seaweed-enriched humic acid ha^{-1}). Humic acid enhances nutrient availability, stimulates seed germination and viability, and primarily promotes root growth. Growth parameters—plant height, leaf number, branch number, and flower number—were recorded at 30, 50, and 80 days after sowing (DAS). The highest values were observed at DAS 80, with plant height (119 cm), leaf number (130.33), branch number (26.67), and flower number (63.35). Yield performance revealed maximum production in T_2 (21.15 ton ha^{-1}), followed by T_3 (16 ton ha^{-1}), T_1 (12 ton ha^{-1}), and minimum in T_0 (12 ton ha^{-1}). The findings indicate that seaweed-enriched humic acid significantly enhances growth and yield attributes of Bt. brinjal. Therefore, its application can be regarded as an effective, eco-friendly, and sustainable supplement to improve productivity and promote sustainable agricultural systems in Bangladesh.

Key words: Bt brinjal, Fruit and Shoot Borer, Sea weed, Humic acid, Recommended fertilizer.

COMPREHENSIVE ANALYSIS OF THE IMPACT OF TIMSEN (N-ALKYL DIMETHYL BENZYL AMMONIUM CHLORIDE) ON A SPECTRUM OF WATER QUALITY PARAMETERS

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Abstract

The experiment was conducted to determine the effect of Timsen on different water quality parameters at the rooftop of the Faculty of Fisheries for a period of 15 days. The experiment was designed into four treatments (T_1, T_2, T_3 and T_4) each with three replications and the doses were 0g, 1g, 2g and 3g Timsen per 1 ton water, respectively. 12 buckets with 110-liter water holding capacity were used for this experimental purpose and each bucket was filled with 100-liter water. Data on water quality parameters were recorded regularly during the study period. It was observed that the values of pH, dissolved oxygen, nitrite, alkalinity, and hardness were increased and ammonia became reduced due to the use of Timsen, which was suitable for fish culture. The highest pH, dissolved oxygen, nitrite, alkalinity, and hardness were found in T_4 and the average values were: pH-7.96, dissolved oxygen-4.72 mg/L, nitrite-0.11 mg/L, alkalinity-186.6 mg/L and hardness-195.6 mg/L. The lowest ammonia was found in T_4 and the average value was 0.0480 mg/L. The study revealed that Timsen maintains the optimum aquaculture water quality for better fish production and it has no adverse effect on water quality parameters.

Keywords: Timsen, Water temperature, pH, Dissolved oxygen, Ammonia.

SUSTAINABLE PLA/FISH SCALE BIOCOMPOSITES WITH VIA STEREOLITHOGRAPHY (SLA)

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ABSTRACT

Introduction and Purpose: Additive manufacturing technologies offer numerous advantages over traditional manufacturing methods, including design flexibility, reduced material waste, and the ability to produce customized components. Among these technologies, stereolithography (SLA) stands out for its high resolution and precision, making it particularly suitable for detailed and functional part production [1]. In line with sustainable manufacturing goals, the use of biodegradable and environmentally friendly materials in SLA processes is gaining increased attention. Polylactic acid (PLA), derived from renewable sources and known for its biocompatibility and biodegradability, is widely used in many applications [2].

Materials and Methods: This study aims to develop an environmentally friendly biocomposite by incorporating fish scale powder-a natural byproduct of the seafood industry-into a PLA-based resin suitable for SLA printing. Fish scales contain collagen, hydroxyapatite, and various proteins, which contribute to both biocompatibility and mechanical strength [3]. In this context, optimal processing conditions for the commercial PLA photopolymer resin were first determined using the SLA method. Afterwards, PLA-based resin was modified by adding fish scale powder at concentrations of 1% to 3 by weight. To ensure proper mixing and homogeneity, the composite resins were printed using SLA method.

Results: The mechanical properties of the printed specimens were analyzed using tensile and three-point bending tests. The tensile test results showed an increase in both elastic modulus and tensile strength with increasing filler content, up to a certain threshold. Similarly, the

flexural tests provided complementary data about the stiffness and deformation behavior of the composites. Moreover, the diffusion method was applied against gram-positive and gram-negative bacteria. Optical microscopy was employed to investigate the microstructural features and the dispersion of the fish scale powder within the PLA matrix. While uniform particle distribution was observed at lower concentrations, agglomeration tendencies became more apparent as the filler content increased.

Discussion and Conclusion: This study demonstrates the feasibility of utilizing fishery industry waste to produce value-added, biodegradable composites compatible with SLA technology. The incorporation of fish scale powder not only enhances certain mechanical and thermal properties of the PLA matrix but also contributes to the development of sustainable material systems for advanced manufacturing applications.

Key Words: Polylactic acid (PLA), fish scale powder, stereolithography (SLA), biocomposite, tensile test, flexural test, Antibacterial test, optical microscopy

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ALTERED GUT MICROBIOME COMPOSITION OF *STREPTOCOCCACEAE* AND *LACHNOSPIRACEAE* IN MULTIPLE SCLEROSIS PATIENTS

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Abstract

Multiple Sclerosis (MS) is a chronic autoimmune disease, characterized by inflammation and demyelination of the central nervous system (CNS), that has a significant impact on public health. Its consequences are considerable due to its high prevalence and lifelong debilitating symptoms such as fatigue, mobility issues, and cognitive impairment or visual disturbances. Recent research highlights the gut microbiome's role in MS pathogenesis and progression, suggesting that changes in microbial diversity and composition may affect disease outcomes via the gut-brain axis. This study aims to understand microbial biodiversity in MS patients by utilizing a metabarcoding approach for comprehensive microbial community profiling for any given sample. Our research addresses both alpha and beta biodiversity of the human microbiota comparing MS patients to healthy individuals. Alpha diversity indicating species richness within the sample, and beta diversity indicating differences in microbial composition between samples are important for understanding the complexity and health of microbial communities. This study collected 97 control and 137 patient samples from NCBI and processed them in Galaxy Server Europe. Results show distinct microbial community compositions between MS patients and controls. *Streptococcaceae* family was significantly more abundant in MS patients whereas *Lachnospiraceae* family was more common in control individuals. These findings suggest certain microbial taxa may influence MS pathogenesis, highlighting the importance of studying microbial diversity for understanding and better control of MS. Future research should further explore these microbial interactions and their implications for disease progression and treatment.

Keywords: Multiple Sclerosis (MS), Metabarcoding, 16S rRNA Sequencing, Alpha and Beta Diversity, Microbial Dysbiosis.

THE STRAWBERRY TREE (ARBUTUS UNEDO L.): IMPACTS OF ECOLOGY ON PHENOLIC COMPOUNDS

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Abstract

The strawberry tree (Arbutus unedoL, Ericaceae family), also known as the strawberry tree, is in fact a speciesthat grows mainly in the wild and is typical of the Mediterranean region. It isalso known for its richness in phenolic compounds such as flavonoids tannins, and phenolic acids. Due to its essential role in protecting the plant against environmental stress, particularly the properties (astringent, antiseptic,anti-inflammatory, antispasmodic, diuretic, etc.) attributed to thedifferent biological parts (leaves, fruit, bark, root) of theplant. In recent years, these applications have attracted growing interestamong scientists and even the general public. Ecological factorssuch as climate, altitude, soil type, and sun exposure influence the biosynthesis of itsphenolic compounds. In Morocco, the strawberry tree remains little studied and unknown from a nutritional and therapeutic point of view in medicine. In view of the above, this study aims to provide a review of original data on the biogeographical distribution area determining the main climatic conditions favorable to the production of phenolic compounds.It also aims to explore the idea of their use in agroecology, their potential socio-economic uses, and the progress made in programs to promote this species to ensure food security. In conclusion, understanding the interactions between the environment and biosynthesis is essential for the development of new pharmaceutical products. The idea of their installation in agro ecology, potential socio-economic uses, and advances in programs to promote this species to ensure food security. In conclusion, understanding the interactions between the environment and the biosynthesis of its compounds enables the sustainable exploitation of arbutus trees for medicinal, food, and cosmetic uses. This information contributes to the design of exploitation programs, understanding the diversity of phenolic compounds in arbutus trees, and exploring ways to extract them.

Keywords: Strawberry tree (Arbutus unedo L.), Biogeographical distribution, potential socioeconomic uses, phenolic compounds.

USING POPULAR PHILOSOPHY TO UNDERSTAND POLITICAL SPEECHES

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ABSTRACT

Introduction and Purpose: The purpose of this paper is to see how we can rely, based on the frequent presence of various philosophical concepts, on our knowledge of philosophy in order to understand political speeches and, especially, on the way in which these notions have entered everyday life thinking and usage.

Materials and Methods: The particular case of Romania as a member of the European Union is had in view by the present paper. The values and structure of the European Union make us consider issues such as justice and representation of various interests, in order to achieve equality and well being. The European Union functions based on policies, which reinforce various values. Justice especially stands out as a value. We can go back to Plato's philosophy of justice, which is the main issue in his *Republic*. Justice is frequently invoked in political speeches, helping politicians to promote a fair society. The opposite can be a tendency of the speech towards an authoritarian society and thus to an exclusive ideal of justice. Order and security in a society which is present in a political speech can refer to Plato's idea of a just society, helping to achieve the common good, or it can refer to control and maintaining the power of the elite. Aristotle's rhetoric can help us identify emotional appeal (pathos), logical arguments (logos), speaker's character (ethos) as means of persuasion in a speech. Recent speeches in online social media of selected Romanian politicials will be used as examples.

Results: The emotional component in a political speech is underlined by using the philosophical concept of justice

Key Words: Ethos; Pathos; Logos; Plato; Aristotle

TARGETED NANODELIVERY OF A DPP-4 INHIBITOR AND A SERM: AN INNOVATIVE STRATEGY FOR EFFECTIVE PCOS TREATMENT

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Abstract

Polycystic Ovary Syndrome (PCOS) is an endocrine disorder characterized by a combination of metabolic, hormonal, and reproductive dysfunctions. Current treatment strategies mostly offer symptomatic relief, frequently involving multiple medications with limited bioavailability and side effects. Nanotechnology advancements have paved the way for targeted and controlled drug delivery, which provides improved therapeutic accuracy and lower systemic toxicity.

This review brings together and assesses studies on nanocarrier-based co-delivery systems that include a Dipeptidyl Peptidase-4 (DPP-4) inhibitor and a Selective Estrogen Receptor Modulator (SERM) for treating PCOS. The DPP-4 inhibitor tackles insulin resistance and inflammatory pathways, while the SERM adjusts estrogen activity, offering a dual therapeutic benefit. Additionally, the review covers the design, benefits, and difficulties of different nanocarriers; like liposomes, niosomes, and polymeric nanoparticles,employed to enhance drug stability, achieve site-specific targeting, and enable controlled release.

In summary, this article emphasizes the promise of targeted nanoformulation-based combinatorial therapy as a novel and unified method for effective PCOS management, setting the stage for treatments that are more efficient, compliant with patient needs, and driven by underlying mechanisms.

Keywords: PCOS, nano-appended delivery, DPP-4 inhibitor, SERM, targeted therapy.

DIVERSITY AND DISTRIBUTION OF THE ARANEAE FROM BARMKELA FOREST, CHHATTISGARH, INDIA

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ABSTRACT

Spiders (Araneae) are a highly diverse group of arthropods found in nearly all habitats. A survey of Araneae fauna was conducted from October 2023 to September 2026 in Forest of Barmkela, Chhattisgarh India. The researcher aims to assess the distribution and diversity of spider species within the Barmkela forest and to compile a detailed species checklist. Specimen identification and classification were conducted using morphometric characteristics and a taxonomic key provided by a taxonomist. This study identified a total of forty species, classified into thirteen families. In the study area, Araneidae family was the most diverse and Argiope was numerically abundant spider genus, while Agelenidae family was the least abundant. This research provides a comprehensive examination of previously unstudied spider species in the region, emphasizing the area's rich spider diversity and advocating for increased forest conservation efforts. Further extensive research is needed to identify additional spider species within this relatively unexplored region of Chhattisgarh as well as India.

Key Words- Araneae, Diversity, Spider, Araneidae Barmkela.

IMPACT OF DROUGHT ON THE TROPHIC STATUS OF LAKE AGUELMAM TIFOUNASSINE (MIDDLE ATLAS, MOROCCO)

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Abstract

Lake Aguelmam Tifounassine, designated as a Ramsar site since 2004, is located in the Middle Atlas Mountains, approximately 40 km south of the city of Ifrane. It is characterized by a sub-humid climate with cold winters. Currently, this shallow lake faces several challenges, mainly reflected in declining water levels and ecological disturbances caused by human activities and exacerbated by recurrent droughts.

In this context, the present study aims to assess the impact of a dry hydrological year (2022–2023) on the physico-chemical quality and trophic evolution of Lake Aguelmam Tifounassine. Samples were collected bimonthly, and analyses focused on a set of physico-chemical parameters (temperature, pH, transparency, conductivity, dissolved oxygen, turbidity, total dissolved solids, silica, and nitrogen and phosphorus compounds) as well as biological parameters (phytoplankton and zooplankton).

The results show that the lake's waters are well oxygenated, weakly mineralized, alkaline, and of low transparency. Nitrogen and phosphorus concentrations were found to be high. The qualitative study of phytoplankton revealed several taxa belonging to different algal classes, including Chlorophyceae, Diatoms, and Cyanophyceae. Zooplankton was dominated by rotifers, followed by copepods and cladocerans.

According to the OECD classification model based on water transparency and total phosphorus concentrations, Lake Aguelmam Tifounassine can be classified as a eutrophic lake.

Keywords: AguelmamTifounassine, Middle Atlas, eutrophication.

ELIZABETH I: EMOTIONAL INTELLIGENCE AND EFFECTIVE LEADERSHIP

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Abstract

Emotional intelligence is the capacity to manage and regulate emotions with efficacy. It is the ability to identify and realize potential beneficial impact emotions can have on others. The last Tudor monarch, Queen Elizabeth I (1533–1603), employed the modern Emotional Intelligence theory as an effective strategy to present an image of a powerful female leader and silence the oppressive gender expectations of early modern England. This paper introduces the concept of emotional intelligence as a sophisticated political strategy that played a crucial role in determining the effectiveness of Elizabth's female leadership, illustrating her deliberate orchestration of empathy and affection. This strategy allowed her to foster her authority, gain obedience, and deal with intricate political issues. This research uses a descriptive qualitative method, with a content analysis. The results of the study reveal a substantial correlation between emotional intelligence and leadership efficiency and efficacy. The study redefines Elizabeth's reign as affective statecraft, emphasizing the crucial role of emotion for a female monarch. This standpoint broadens insights of Elizabeth I's leadership and heightens awareness about the intersections of emotion, gender, and effective leadership. Her EI skills were evident in various settings, including her coronation Entry, her official speeches and correspondence.

Key Words: Elizabeth I; Emotional intelligence; Affective statecraft; effective leadership

THE GROWTH PERFORMANCE OF AFRICAN CATFISH (*CLARIAS GARIEPINUS*) FED DIET WITH VARYING LEVEL OF *SENNA TORA* LEAF MEAL

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ABSTRACT

The growth performance of African catfish (*Clarias gariepinus*) fed diet with varying level of *Senna tora* leaf meal was determined in 8 weeks feeding trial. The objective of this research was to assess the growth performance and feed utilization of African catfish fed diet containing varying percentage levels of *Senna tora* leaf meal. Four isocaloric and isonitrogenous diets with 35% crude protein level with varying proportions of *Senna tora* leaf meal were fed to twelve groups of juveniles of *Clarias gariepinus* with 10 individuals in each plastic bowls for a period of 56 days. The experiment consisted of four treatments replicated three times in a randomized complete block design (RCD). The diets numbered I, II, III, and IV contained 0% (control), 20%, 40% and 60% *Senna tora* leaf meal respectively. The result for this experiment showed that, the treatments had no negative `effect on the fish survival rate, food conversion ratio, growth performance, protein efficiency ratio and economic index ($P>0.05$). It was concluded that, *Senna tora* leaf meal can replace some conventional fish feed ingredients in fish feed formulation better without deleterious effect on fish growth performance and survival rate. It is also, highly suggested that further research should be conducted to determine the level of antinutritional factors presents in *Senna tora* leaves and also the best way of processing this plant apart from sun drying.

Key Words: Clarias gariepinus, Senna tora, diets, Growth performance, meal

THE RELATIONSHIP BETWEEN LEADERSHIP STYLES AND NURSES' PERCEPTION OF AFFECTIVE WORKPLACE WELL-BEING IN GOVERNMENTAL HOSPITALS IN MAKKAH-SAUDI ARABIA

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Abstract

Aim: The research investigates the relationship between leadership styles and nurses' perception of affective workplace well-being in Makkah governmental hospitals.

Background: The research needs to study how different leadership approaches affect nurses' emotional health in Saudi hospitals because current knowledge about leadership effects on workplace affective well-being remains insufficient. The research findings will help organizations develop better methods to enhance nurse workplace satisfaction.

Research questions: What is the nurse's perception of their leadership styles? What is the level of workplace affective well-being among nurses? What is the relationship between leadership styles and nurses' perception of affective workplace well-being?

Methodology: The research employed a cross-sectional survey design to collect data from 569 registered nurses who worked in inpatient wards and intensive care units across two major governmental hospitals in Makkah during 2024-2025. The participants used the Multifactor Leadership Questionnaire (MLQ 5X Short Form) to evaluate their perceived leadership approaches (transformational, transactional, passive-avoidant) and the Daniels Five-Factor Measure of Affective Well-being (D-FAW). The research team performed descriptive statistics and correlation analysis and structural equation modeling for path analysis.

Results: The research results show that nurses in the study perceived passive-avoidant leadership styles (Management by Exception-Passive [MBEP], Laissez-Faire [LF]) more than US norms but transformational leadership styles at or near the norm level. The research participants showed average affective well-being scores which reached 35.85. The research findings demonstrated that active leadership approaches (most transformational components and Contingent Reward [CR] and Management by Exception-Active [MBEA]) created positive relationships with affective well-being but passive leadership approaches (MBEP and LF) produced negative results. The research results showed that Contingent Reward (CR) demonstrated the strongest positive relationship with all affective well-being dimensions through path analysis (β values from .199 to .252 for positive affects and -.191 to -.270 for negative affects at $p < .05$). The research results show that nurses who experience passive leadership styles (MBEP and LF) develop lower affective well-being levels (e.g. MBEP β = .337 for Anxiety and β = -.328 for Pleasure at $p < .001$). The research findings demonstrate that nurses in Makkah governmental hospitals experience significant effects from their perceived leadership approaches on their workplace affective well-being.

Conclusion: The research shows that active leadership approaches lead to better results than passive leadership methods. The research results demonstrate that Contingent Reward as a

transactional leadership style produces the most significant positive effects on affective states. The research results indicate that organizations should focus on decreasing passive leadership while promoting active reward-based leadership to create better working conditions for nurses.

Keywords: Leadership Styles, Affective Well-being, Nurses, Saudi Arabia, Hospital Setting, MLQ, D-FAW, Contingent Reward, Passive-Avoidant Leadership.

EFFICACY OF BLACK SOLDIER FLY LASRVAE OIL AS AN ALTER SOURCE OF LIPID ON GROWTH AND HEALTH PERFORMANCE OF STINGING CATFISH, *HETEROPNEUSTES FOSSILIS*

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Abstract

The scarcity of fish oil (FO) globally poses a challenge for aquaculture. Alternative vegetable oils like soybean, palm, and canola oil have been tested on various fish species, facing competition from human consumption. Continuous exploration of alternative lipid sources is crucial for successful aquaculture, with insect oil emerging as a potential solution. However, there's a lack of studies on insect oils, particularly black soldier fly larvae oil (BSFLO), in commonly cultured fish species in Bangladesh, including stinging catfish (*Heteropneustes fossilis*). A 70-day feeding trial assessed the efficacy of BSFLO as alternatives to FO, soybean oil and palm oil for enhancing the growth and health of H. fossilis. Five isolipidic diets were formulated viz., the control diet (D1) comprised fish meal as the protein source and FO as the lipid source, while the remaining diets replaced FO with soybean oil (D2), BSFLO (D3), palm oil (D4), and a mixed oil (D5) consisting of 50% BSFLO, 25% soybean oil, and 25% palm oil. Total 300 fish were randomly distributed in 15 100-L fiber glass tank (20 fish/tank). The fish were hand-fed to satiation twice daily. Growth performance of BSFLO-fed group was comparable to FO, soybean oil, and palm oil groups, with slightly higher values observed in the mixed oil group. Oil sources didn't significantly affect whole-body nutrient content. Plasma total protein and cholesterol content were significantly higher in BSFLO included groups compared to other treatments. Significantly higher and lower triglyceride content observed in D5 and D2 group, respectively; other group showed intermediate values. Whole body lauric acid showed significantly higher values in BSFLO included groups (D3 and D5) compared to other dietary groups. Total saturated and mono unsaturated fatty acid contents was significantly lower in D2 group compared to other dietary groups. Total polyunsaturated fatty acid content was significantly higher in D1and D2 groups in comparison to others. Ecosapentanoeic acid (EPA) and docosahexanoic acid (DHA) contents were significantly higher in fish fed D1 group compared to other dietary treatments. In conclusion, considering growth and overall health performance insect oil (BSFLO) could serve as a substitute for FO, soy oil and palm oil in stinging catfish diet.

Keywords: *Heteropneustes fossilis*, Insect oil, terrestrial oil, growth, health performances, fatty acid profile

COMPUTATIONAL INSIGHTS INTO THE BINDING STABILITY AND PHARMACOKINETIC SUPERIORITY OF 10Myr-9A-3αMBA, AN ENDOPHYTIC METABOLITE AND ITS DERIVATIVES AS NOVEL PARP-1 INHIBITORS FOR THE TREATMENT OF TRIPLE NEGATIVE BREAST CANCER

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Abstract

Triple Negative Breast Cancer (TNBC) is the most challenging subtype of Breast Cancer and the harboring of BRCA 1/2 mutations in many TNBC, making cancer cells highly dependent on Poly (ADP-ribose) polymerase-1 (PARP-1) mediated pathways. Inhibition of PARP-1 induces synthetic lethality in BRCA 1/2 mutated breast cancer cells. However, drug resistance, toxicity and poor pharmacokinetic profiles of current PARP-1 inhibitors necessitate the discovery of new molecules with improved safety, efficacy and bioavailability to overcome these limitations. Hence, we arranged 238 endophytic secondary metabolites collected from 25 literature sources to find a novel compound that can show inhibitory action on PARP-1, leveraging the structural diversity of these metabolites. Molecular docking of these metabolites with PARP-1 protein was performed using AutoDock Vina implemented within PyRx GUI. After subsequent ADMET analysis of the top ranked molecules based on binding affinities, 10-Myrtenone, 10-(9-anthryl)-3-(alpha-methylbenzylamino)- [10Myr-9A-3αMBA] (CID ID: 571447) emerged as the most promising and safest molecule to inhibit the protein with a binding affinity of -11.7 kcal/mol. At the same time, 10 derivatives of 10Myr-9A-3αMBA were computationally generated to explore the novel structure of 10Myr-9A-3αMBA for enhanced anti-cancer activity. Among which 5 derivatives showed favorable binding affinities and ADMET profiles. After general confirmation of the compound 10-Myrtenone, 10-(9-anthryl)-3-(alpha-methylbenzylamino)- and its derivatives as safer and novel inhibitors of PARP-1 protein, the compound 10-Myrtenone, 10-(9-anthryl)-3-(alpha-methylbenzylamino)- and one of the derivatives along with the control (Olaparib) underwent 100 ns molecular dynamic (MD) simulation to validate docking interactions and rigidity of the protein ligand complexes. Post simulation analysis including root-mean-square deviation (RMSD), root-mean-square fluctuation (RMSF), radius of gyration (Rg), SASA (Solvent accessible Surface Area) value, Hydrogen bond analysis and MM-PBSA confirmed binding stability and conformational rigidity of the compounds in active cavity. This in silico investigation reveals that the screened compound 10Myr-9A-3αMBA and its selected derivatives might be potent and safe inhibitors of PARP-1 protein after appropriate in vivo and in vitro studies and will offer new scaffolds to expand the therapeutic prospects to treat TNBC.

Keywords: Triple Negative Breast Cancer, PARP-1, Endophytic Secondary Metabolites, ADMET, Molecular Docking.

FORMULATION AND EVALUATION OF AN ANTIOXIDANT CLAY MASK CONTAINING AVOCADO LEAF (*PERSEA AMERICANA MILL.*) AND LEMON (*CITRUS LIMON L.*) EXTRACTS

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Abstract

Indonesia possesses a diverse range of medicinal plants, among which the avocado (*Persea americana* Mill.) is notable for its bioactive potential. Avocado leaves contain various phytochemical compounds, including saponins, alkaloids, tannins, flavonoids, polyphenols, and quercetin, exhibiting strong antioxidant activity with an IC_{50} value of 54.69 µg/mL. Lemon (*Citrus limon* L.) juice, rich in citric acid and vitamin C, also demonstrates significant antioxidant activity (49.593 µg/mL). Market evaluations have revealed that several commercial facial masks contain potentially harmful ingredients, emphasizing the need for safer natural alternatives.

This study aimed to determine the effect of different formulation ratios of avocado leaf extract and lemon juice on the physicochemical properties and antioxidant activity of clay mask formulations, and to identify the optimal formulation. Avocado leaves were extracted using the maceration method with 90% ethanol, and the obtained extract was combined with lemon juice in varying ratios (5:0 g, 4.5:0.5 g, 4:1 g, 3.5:1.5 g, 3:2 g, and 2.5:2.5 g) using a Completely Randomized Design (CRD). The formulations were evaluated for yield, moisture content, pH, antioxidant activity (DPPH assay), drying time, and specific gravity.

The results indicated that the optimal clay mask formulation was obtained from the ratio of 4 g avocado leaf extract to 0 g lemon juice, which produced a yield of 91.88%, moisture content of 45.60%, pH of 6.57, IC_{50} value of 153.02 ppm (classified as weak antioxidant activity), drying time of 17 minutes, and specific gravity of 1.05 g/mL. The findings suggest that avocado leaf extract can be effectively utilized in natural clay mask formulations with favorable physicochemical characteristics and moderate antioxidant properties.

Keywords: clay mask, *Persea americana*, maceration, *Citrus limon*, antioxidant activity

BIOACTIVE POTENTIAL AND ANTIFUNGAL PROPERTIES OF A CISTACEAE MEDICINAL PLANT FROM MOROCCAN FORESTS

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Abstract

The forest flora of Morocco constitutes a rich reservoir of bioactive metabolites with the potential to support the development of novel, naturally derived antifungal agents. In this study, we conducted a comparative analysis of two parts of a medicinal plant from the Cistaceae family namely, the aerial parts and the roots in order to assess their bioactive potential. A qualitative phytochemical screening was performed to identify the major classes of secondary metabolites, including alkaloids, flavonoids, tannins, and saponins. The results indicated that both plant parts contained similar families of compounds, although variations were noted in terms of reaction intensity and apparent abundance for certain groups. In parallel, the *in vitro* antifungal activity of aqueous extracts was evaluated against the phytopathogenic fungus *Fusarium oxysporum*. The findings revealed differences in antifungal efficacy depending on the plant part tested, with some fractions exhibiting notable inhibitory effects. Overall, these results highlight the potential of Moroccan forest plants as promising natural sources of antifungal biomolecules, supporting their potential integration into alternative and sustainable biological control strategies.

Keywords: Forest plant; Morocco; secondary metabolites; antifungal activity, phytochemical screening.

EVALUATING THE IMPACT OF SIGNAL TIMING AND TRAFFIC COMPOSITION ON SHARED LANE CAPACITY AT URBAN INTERSECTIONS

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Abstract

Efficient signal timing is a key factor in enhancing the capacity and overall performance of urban intersections. Intersection capacity depends on several parameters, particularly the green time allocation, cycle length, and the composition of traffic flows. In Algeria, the rapid increase in car ownership and the lack of locally adapted design guidelines have created challenges for traffic engineers, who often rely on foreign models not calibrated to local conditions. The findings of this study show that longer green times improve shared lane capacity up to an optimal point, beyond which additional green time has limited effect. Moreover, traffic composition, especially the proportion of left-turning vehicles, exerts a stronger influence on lane capacity than signal timing alone. These results underline the importance of adapting signal control strategies to local traffic characteristics in order to achieve more efficient and sustainable intersection performance.

Keywords: Signalized intersections; Shared lane capacity; Green time; Signal timing; Traffic composition; Algeria.

THE GROWTH POTENTIAL OF THREE FRESHWATER MICROALGAE STRAINS FROM THE FES-MEKNES REGION OF MOROCCO

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Abstract

The increasing industrial and commercial interest in microalgae arises from their wide range of advantages. These microorganisms play a key role in mitigating climate change thanks to their ability to capture carbon dioxide (CO_2) through photosynthesis, thereby reducing greenhouse gas emissions. Consequently, investigating the growth kinetics of different species is vital for optimizing culture conditions suited to each microorganism, especially in bioproduction and wastewater treatment processes. This research focused on the growth kinetics of three microalgae strains (*Monoraphidium* sp., *Ankistrodesmus* sp., and *Chlamydomonas* sp) isolated from freshwater environments in Morocco's Fez-Meknes region, specifically Zarrouka Lake. *Monoraphidium* sp. demonstrated the highest biomass productivity at approximately 3.4 g L^{-1} and a maximum density of around 10×10^6 cells/mL, whereas *Ankistrodesmus* sp. exhibited limited growth with a biomass of about 1.8 g L^{-1} and a maximum density of 3×10^6 cells/mL.

These results emphasize the importance of choosing microalgae species adapted to particular environmental conditions to achieve optimal application results. Tailoring culture parameters to meet the specific requirements of each species can greatly enhance productivity in biomass production and wastewater treatment. Moreover, using wastewater as a medium for microalgae cultivation supports both water purification and nutrient recovery, in line with the principles of the circular economy. This approach converts waste into valuable biomass, fostering sustainable practices that reduce reliance on fossil fuels and minimize environmental impacts.

Keywords: Microalgae, growth dynamics, wastewater, circular economy, environmental footprint.

A REASSESSMENT OF THE ENVIRONMENTAL KUZNETS CURVE: AN ECONOMETRIC ANALYSIS IN THE CONTEXT OF MENA COUNTRIES

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Abstract

This study investigates the relationship between economic growth and environmental degradation in ten MENA countries over the period 2000-2020, through the frame of the Environmental Kuznets Curve (EKC) hypothesis. Based on the framework of (Grossman & Krueger, 1995), which suggests an inverted U-shaped link between income and pollution, this paper examines two pollution indicators: carbon dioxide (CO_2) emissions per capita representing global pollution, and fine particulate matter ($PM_{2.5}$) concentrations representing local pollution. The analysis uses panel data econometric models with fixed and random effects after using the Hausman test to identify the most appropriate specification. The results indicate that the EKC hypothesis is confirmed for $PM_{2.5}$, implying that higher income levels are associated with improving local air quality after reaching a certain turning point. On the other hand, CO_2 emissions continue to rise with economic growth, and shows no evidence of an inverted U-shape. These findings echo (Dinda, 2004)and Arouri & al. (2012), suggesting that the EKC relationship depends on choice of pollutant type, energy structure and policy context. The study emphasizes that local environmental policies are more effective on the shorter run, whereas controlling global emissions levels such as CO_2 requires stronger international cooperation and coordination (Abdouli & Hammami, 2017)

Keywords: Economic Growth, Environmental Kuznets Curve, MENA, CO_2 Emissions, $PM_{2.5}$, Panel Data

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IMPACT OF VITAMIN D DEFICIENCY ON CORNEAL HEALTH UPON CHILDREN WITH RICKETS

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Abstract

Background: Vitamin D is crucial for enhancing general health, particularly in the development of strong bones and bolstering the immune system. In children, a substantial deficiency of vitamin D can lead to a condition known as rickets, characterized by weakened bones and skeletal abnormalities. While extensive research has been conducted on the impact of rickets on the musculoskeletal system, there is limited investigation into the effects of vitamin D deficiency on ocular health, specifically focusing on the cornea of the eye. This research aims to investigate the consequences of vitamin D deficiency on the cornea in children diagnosed with rickets.

Objectives: To identify any effect on corneal or structural changes associated with vitamin D deficiency in these children. To find relationship between vitamin D levels and corneal health.

Methodology: A case-control study design to identify the impact of vitamin D deficiency on the corneal health in children diagnosed with rickets the study started from OCT20th, 2023 to Jan 5,2024 The study was carried out in pediatric clinics and hospitals across various locations in the Kurdistan Region and Najaf city of Iraq, with the informed consent of the children's parents being obtained such as Rehabilitation center, a nutrition clinic counseling from pediatric and ophthalmology center test A purposive sample of (50) child divided into two groups. The first group comprised 25 children (13 males and 12 females) diagnosed with rickets, selected from a nutrition clinic along with their parents and received counseling from pediatric and ophthalmology center test during the data collection period. The second group consisted of 25 healthy children (13 males and 12 females). The Questionnaire for this current study was gathered and conducted using study instruments to assess serum levels of Vitamin D, Calcium, and phosphate, along with ophthalmological evaluations. Additionally, participants will be given a questionnaire to gather variable's on their dietary pattern sun exposure, and lifestyle factors. Data were analyzed using SPSS 27. Descriptive statistics of range, mean and standard deviation were used, in addition to inferential statistic such as t-test to find significant difference in means. A p value less than 0.05 were considered significant.

The results of study reveal that the mean of vitamin D level in study group was found to be 9.1 ng/mL, significantly lower than the control group mean of 60.0 ng/mL ($p<0.001$). the study observed a marked difference in the mean calcium levels, where the patient group exhibited a mean of 1.3 compared to the control group's mean of 2.0 ($p<0.001$). Similarly, the mean phosphate levels in the patient children group were 1.3, significantly lower than the control children group mean of 2.2 ($p<0.001$).

Conclusion & Recommendation: The mean vitamin D level in the study group was found to be 9.1 ng/ mL, significantly lower than the control group mean of 60.0 ng/mL ($p<0.001$). the study observed a marked difference in the mean calcium levels, where the patient group exhibited a mean of 1.3 compared to the control group's mean of 2.0 ($p<0.001$). Similarly, the mean phosphate levels in the patient children group were 1.3, significantly lower than the control children group mean of 2.2 ($p<0.001$). according to this finding it is recommends to emphasize on post natal care for children to give immunization and give good nutrition with exposure to sun in morning.

Key words: vitamin D, rickets, corneal, children, health

BORONIZING KINETICS OF M2 STEEL USING THE TAYLOR EXPANSION MODEL

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Abstract

This study focuses on modeling the boron diffusion in AISI M2 steel over a temperature range of 1173–1373 K when froming the Fe_2B layers. Experimental data on the pack-boronizing of AISI M2 steel reported in the literature were used to estimate the boron activation energy in the Fe_2B phase. The obtained activation energy was then used to compare the experimentally measured Fe_2B layer thicknesses with those predicted by the Taylor expansion model.

Key words: Boronizing, Diffusion, Kinetics, Taylor expansion model, Activation energy,

MENTORSHIP AS A CATALYST FOR VENTURE CREATION: EVIDENCE FROM MASONRY ARTISANS IN MINNA METROPOLIS

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Abstract

Despite the strategic importance of the informal construction sector to local economies in Nigeria, particularly in Niger State, the venture creation outcomes of masonry artisans remain underexplored. This study investigates the effect of entrepreneurial mentorship on venture creation among masonry artisans in Minna Metropolis, Niger State. Grounded in Social Learning Theory, it conceptualizes mentorship across four dimensions: skill development, business advice, network access, and role modeling. Through a quantitative cross-sectional design using structured questionnaires and multiple regression analysis, the study addresses key gaps in methodology, geography, and knowledge in existing literature. Findings are expected to reveal how culturally embedded mentorship practices, including apprenticeship and freedom ceremonies, influence artisans' transition into self-employment. The study concludes that targeted, multidimensional mentorship significantly enhances venture creation and recommends policy-driven formalization of mentorship in artisan trade networks. These insights contribute to the discourse on informal sector development, with implications for employment generation and sustainable urban construction.

Keywords: Entrepreneurial mentorship, venture creation, masonry artisans, informal sector, Niger State, apprenticeship, multiple regression.

INTEGRATED SUSTAINABILITY GOVERNANCE IN GROUND HANDLING: ÇELEBİ GROUND HANDLING TURKEY

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ABSTRACT

Introduction and Purpose: Sustainability has become a strategic priority shaping the future of the global aviation industry. Ground handling operations play a central role in this transformation due to their direct environmental and operational impacts. This study aimed to analyze the sustainability governance and climate resilience model of Çelebi Ground Handling Turkey within the framework of Türkiye Sustainability Reporting Standards (TSRS 1–2) and the Task Force on Climate-related Financial Disclosures (TCFD).

Materials and Methods: A qualitative content analysis method was employed. The study examined Çelebi's 2024 TSRS-aligned Sustainability Report in line with TCFD's four pillars—governance, strategy, risk management, and metrics & targets. The company's organizational structure, climate risk classification, and RCP4.5/RCP8.5 scenario-based resilience strategies were evaluated through a holistic sustainability perspective defined by Elkington (1997) and Lozano (2015).

Results: Findings revealed that sustainability at Çelebi has evolved from a reporting obligation into an integrated strategic governance model. The interaction between the Board of Directors, Early Risk Detection Committee, and Sustainability Committee created a proactive and data-driven decision mechanism. Furthermore, RCP4.5 and RCP8.5 analyses demonstrated that infrastructure reinforcement, equipment electrification, workforce resilience, and data-based monitoring are key drivers of climate adaptation.

Discussion and Conclusion: The study concludes that Çelebi Ground Handling has established one of the first science-based sustainability governance frameworks in Türkiye's ground handling sector. By integrating TSRS and TCFD principles, the company has adopted an evidence-based climate resilience approach that aligns with international aviation standards (ICAO, IATA). This integrated model can serve as a best practice example for other ground handling organizations aiming to strengthen their sustainability governance.

Key Words: Ground Handling; Sustainability; TSRS; TCFD; Climate Resilience

THE RELATIONSHIP BETWEEN CRITICAL CARE NURSES' BURNOUT AND HEALTH-RELATED QUALITY OF LIFE

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ABSTRACT

Introduction and Purpose: Burnout is a physical and psychological reaction to ongoing stress at work, and it is often viewed as a syndrome that affects those who work closely with people in some form. One of the essential elements of human health is quality of life, which includes one's social and cultural environment. Early retirement, burnout, and lower work performance are all highly correlated with poor quality of life. Aim: This study aims to investigate the relationship between critical care nurses' job burnout and health-related quality of life.

Materials and Methods: The study utilized a descriptive correlational research design and was conducted at King Fahad General Hospital in Jeddah, Saudi Arabia. A convenience sample was used for data collection; the sample size was 156 nurses. Two tools were used: the SF-36 Questionnaire and the Maslach Burnout Inventory, in addition to demographic data.

Results: The study found that most nurses were between 30 to 40 years old and that the mean percentage scores for nurses regarding job burnout aspects were 33.74 ± 13.20 for emotional exhaustion, 16.22 ± 7.32 for depersonalization, and 29.44 ± 10.92 for personal accomplishment.

Discussion and Conclusion: Burnout is a common and serious psychological condition that affects healthcare workers, particularly critical care nurses who work in intensive care units (ICUs), critical care units (CCUs), and emergency rooms (ERs). These are challenging settings for nurses because they must manage heavy workloads, caring for patients who require high levels of acuity and advanced nursing care and technology. As a result, daily stressors that lead to job burnout could harm nurses' quality of life. To our knowledge, until now, few Saudi researchers have investigated burnout and its effects on critical care nurses' quality of life in Saudi Arabia. Most critical care nurses experience high burnout levels, and their quality of life decreases as burnout increases. Furthermore, the nursing education system must embrace stress-reduction options.

Key Words: Burnout; Quality of Life; Nursing; Critical Care; Intensive Care Unit; ICU; Critical Care Unit, CCU; Emergency Room; ER

THE GERMAN MODEL UNDER PRESSURE: STRUCTURAL VULNERABILITIES AND THE RECONFIGURATION OF INDUSTRIAL POLICY

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Abstract

Germany's industrial model is undergoing a period of profound structural change, driven by a confluence of external and internal pressures, including intensified geopolitical rivalries, the transition to a green economy, energy shocks, and a persistent shortage of skilled labour. After decades of stability and export-led competitiveness, systemic constraints are calling into question the sustainability of Germany's traditional growth paradigm. This paper examines the key challenges facing Germany's industrial policy in the new global context, focusing on its evolving relationship with China, the implications of the US Inflation Reduction Act (IRA), and the structural vulnerabilities exposed by the post-2022 energy crisis. It argues that Germany is shifting from a liberal, export-oriented model towards a strategy of industrial sovereignty, grounded in technological autonomy, sustainable energy, and state-coordinated transformation.

Key words: Germany, industrial policy, structural transformation, green transition, competitiveness, economic sovereignty

JEL Classification*:* E61, L52, F52, Q48

INSECTICIDAL ACTIVITY OF THREE ESSENTIAL OILS FROM *LAVANDULA OFFICINALIS, SALVIA OFFICINALIS* AND *CYMBOPOGON CITRATUS* AGAINST MOSQUITO VECTORS

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Abstract

Culicidae, mainly *Culex pipiens*, pose a potential threat to human health and the environment and are responsible for the transmission of several parasitic and viral diseases. Many vector control methods have been used, such as physical, chemical and biological methods. The use of chemical insecticides is the method most preferred to control this mosquito, however it generated resistance problems and environmental pollution. Moreover, various plant extracts could be considered as an alternative and as potential sources of mosquito control agents. In this study, the larvicidal activity of the three essential oils against *Culex pipiens* larvae was evaluated using methodology inspired by the WHO standard protocol. The mortality rate was calculated after 24 h of exposure and the probit regression analysis was used to determine the LC_{50} and LC_{90} concentrations.

The results obtained showed the effectiveness of the three essential oils (EOs) of *Cymbopogon citratus, Salvia officinalis* and *Lavandula officinalis* with LC_{50} values of the order of 0.162841, 0.270133 and 0.218515 mg/mL respectively, and CL_{90} values were in the order of 1.22972, 1.29553 and 1.82707 mg/ mL respectively. The morphological analysis of larvae subjected to the treatments revealed notably the disturbance of tracheal system, rupture of intestinal cells, the larvae treated appeared also fragile, which prevented the larval development and survival. The results obtained indicate the sensitivity of the larvae of *Culex pipiens* towards the EOs of the plant species studied. This proves that plant extracts would be an effective biological alternative to chemical products, they could be useful for the investigation of new natural larvicidal compounds.

Keywords: mosquito, diseases, larvicidal activity, plant extracts, biological alternative.

RADIATION-FREE 3D TOOLS FOR ORTHOGNATHIC EVALUATION

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Abstract

Aim: The aim of the present study is to evaluate whether a "radiation free" method using 3D facial scan can replace Cone Beam Computed Tomography (CBCT) volumetric rendering of soft tissue of the patient to assess maxillofacial surgery outcomes and compare the reference points and angular measurements of patient facial soft tissue.

Methods: Facial soft tissue scan of the patient's face, before and after orthognathic surgery and a CBCT of the skull for volumetric rendering of soft tissues were carried out. The 3D acquisitions were processed using Planmeca ProMax 3D (ProFace® software Planmeca USA, Inc.; Roselle, Illinois, USA). The positioned in a natural position during the skull participant were scannering. Three sagittal angular measurements were performed (Tr-NA, Tr-N-Pg, Ss-N-Pg) and two verticals

(Go-N-Me, Tr-Or-Pg) on facial soft tissue scan and on the patient's 3D soft tissue CBCT volumetric rendering.

Results: A certain correspondence has been demonstrated between the measurements obtained on the Proface and those on the CBCT.

Conclusion: A radiation free method was to be considered an important diagnostic tool that works in conditions of not subjecting the patient to harmful ionizing radiation and it was therefore particularly suitable for growing subjects. The soft tissue analysis based on the realistic facial scan has shown sufficient reliability and reproducibility even if further studies are needed to confirm the research result.

Keywords: CBCT; Ionizing radiation; Soft tissue; Orthodontics; Diagnosis.

SEAWEED (*SARGASSUM MUTICUM* (YENDO) FENSHOLT): A SUSTAINABLE SOURCE OF ANTIFUNGAL COMPOUNDS AND GREEN PRESERVATIVES FOR NATURAL COSMETICS

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ABSTRACT

Invasive and Superficial fungal infections, the emergence of drug-resistant fungal strains, and growing consumer demand for natural alternatives to synthetic preservatives pose significant challenges to public health and the cosmetics industry.

This study presents an innovative approach by investigating the potential antifungal properties of the invasive seaweed *Sargassum muticum* (Yendo) Fensholt, which is an abundant and underutilized resource along the Atlantic coast of Morocco.

We assessed the antifungal activity of total alkaloid and phenolic-rich fractions extracted from *S.muticum* against four fungal strains: two airborne toxigenic isolates (*Aspergillus westerdijkiae* Frisvad & Samson and *Chaetomium globosum* Kunze) and two opportunistic nosocomial isolates (*Aspergillus nidulans* (G. Winter) and *Scopulariopsis brevicaulis* Bainier*)*. The extracts demonstrated broad-spectrum antifungal activity, with both fractions exhibiting greater efficacy than ketoconazole, a commonly used antifungal drug. The phenolic-rich fraction displayed particularly low minimum inhibitory concentrations (MICs), ranging from 3.12 to 6.25 µg/mL, against the airborne isolates. The alkaloid fraction showed strong activity against nosocomial strains, with an MIC of 100 µg/mL against *S.brevicaulis*. Remarkably, ketoconazole was ineffective against *A.nidulans*, underscoring the need for alternative antifungal agents.

Chemical profiling using LC-MS and GC-MS revealed the presence of bioactive compounds. For the first time, the alkaloids palmatine and jatrorrhizine were identified in *S. muticum*, along with caulerpin, a known bioactive alkaloid. These compounds are known to induce apoptosis in fungal cells by causing DNA damage. The phenolic fraction consisted of phenolic acids, flavonoids, and phlorotannins, all recognized for their antifungal and antioxidant properties.

By transforming *S. muticum* from an ecological nuisance into a valuable, sustainable source of antifungal agents, this research offers a green, innovative solution for natural cosmetic formulations. The findings support the use of these natural extracts as effective preservatives and active ingredients in skin and nail care products, presenting a promising strategy to combat rising antifungal resistance.

Keywords: Marine algae, *Sargassum muticum*, Antifungal activity, Bioactive compounds, Alkaloids, Phenolic compounds, Natural cosmetics.

FROM CERAMICS TO PORCELAIN: ALBARELLO'S JOURNEY IN THE HISTORY OF MEDICINE

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ABSTRACT

Ceramics, one of the earliest production fields in human history, has been an integral part not only of daily life but also of medicine and pharmacy. Due to its durability, chemical stability, and plasticity, it served as a reliable material in the preparation, preservation, and dosage of therapeutic substances used by early communities. This process, which began in the Neolithic period, gained a systematic nature in Mesopotamian and Egyptian civilizations. Sumerian tablets, Egyptian papyri, and Hittite texts represent the earliest sources documenting the use of ceramic containers both in the manufacture and storage of medicines. During the Classical Greek and Roman periods, these vessels—mentioned in the works of physicians such as Dioscorides—became indispensable tools of pharmaceutical practice.

In the Medieval Islamic world, ceramic containers developed technically and aesthetically, diversifying into various typologies, among which the *albarello* form became prominent. With its cylindrical body, narrow waist, and wide mouth, this vessel facilitated the protection of drugs from moisture while its decorations contributed to the visual culture of the period. Transferred from the Islamic world to Europe via the Iberian Peninsula, the *albarello* was reinterpreted in fifteenth-century Italy through the majolica technique and became a symbolic object of European pharmacy.

In the Ottoman period, the form acquired a local character through the productions of Iznik and Kütahya workshops, later evolving into porcelain material with the nineteenth-century outputs of the Yıldız Porcelain Factory. Thus, ceramic medicine containers reflected the transformation from handcraft to industrial production.

Based on archaeological, textual, and visual evidence, this study examines the historical development of ceramic medicine containers in their technical, typological, and cultural aspects. Focusing on the *albarello* form, it highlights East–West interactions and the continuity of ceramics in medical history. The findings reveal that these vessels were not merely functional objects but tangible carriers of knowledge, craftsmanship, and belief.

Keywords: Ceramics, Albarello, Medicine Containers, History of Medicine, Ottoman Empire, Cultural Heritage, Majolica.

EFFECT OF TREE CONFIGURATION ON AIRFLOW AND THERMAL BEHAVIOR IN AN URBAN STREET CANYON: A CFD INVESTIGATION USING URBAN MICRO CLIMATE FOAM

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Abstract

Urban vegetation is widely recognized as one of the most effective passive strategies to mitigate the Urban Heat Island (UHI) effect and improve outdoor thermal comfort. Among various mitigation approaches, street trees play a crucial role in providing shading, lowering surface and air temperatures, and modifying local airflow patterns. However, their microclimatic influence strongly depends on spatial arrangement and density, particularly within narrow street canyons where aerodynamic blockage can alter natural ventilation.

This study presents a numerical investigation of two practical tree configurations center-line trees positioned along the middle of the roadway and side-row trees aligned along the sidewalks within an idealized 10 m × 10 m × 50 m canyon geometry. The simulations are carried out using the urbanMicroclimateFoam solver, which integrates airflow, heat transfer, radiative exchange, and latent effects associated with humidity and evapotranspiration under steady-state summer conditions. Trees are modeled as porous zones characterized by leaf-area density and drag coefficients to accurately reproduce canopy-induced resistance to flow.

The model accounts for convective, radiative, and latent heat exchange in the air domain, while moisture transport inside solid materials is neglected to reduce computational cost and allow efficient convergence within a few days. Air temperature, humidity, and velocity fields are analyzed at pedestrian height to evaluate thermal and ventilation performance. Preliminary results indicate that both layouts significantly reduce near-ground air temperature relative to the treeless reference case. However, center-line trees, although providing stronger localized shading, considerably decrease the mean wind velocity and restrict canyon ventilation. Side-row trees preserve the main flow channel and produce more homogeneous cooling along sidewalks. These findings emphasize that optimal tree placement is essential for balancing shading, ventilation, and latent cooling effects in compact urban environments.

Keywords: Urban Heat Island (UHI), Street canyon, Urban vegetation, Evapotranspiration, Computational Fluid Dynamics (CFD), urbanMicroclimateFoam.

3D STUDY OF VERTICAL FACIAL DIMENSIONS IN ORTHOGNATHIC SURGERY

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Abstract

Aim: Cephalometry is fundamental in diagnosis, analysis, and planning of orthodontic surgical treatment as it reveals skeletal relationship between the upper and lower jaw as well as facial aesthetic parameters. Nevertheless, 3D cephalometry has still not become the exam of choice in orthognathic treatment even though today CBCT (Cone Beam Computed Tomography) is routinely used in other branches of dentistry. The aim of this study is to evaluate the advantages and disadvantages of the two methods in orthognathic surgery.

Materials and Methods: In a sample of 13 patients undergoing bimaxillary orthognathic surgery a chin-vertex CBCT exam was prescribed prior to orthodontic treatment (OT)and 12 months after surgery (T1). The DICOM files uploaded to MaterialiseSimplant Ortho software pro 2.1

(Materialise Co., Leuven, Belgium) were analyzed following the multiplane 3D Total Face cephalometry protocol (TFA).

Results: Results comparing pre-op and post-op TFA 3D cephalometry, were then evaluated considering reference values reported in literature. The CBCT, carried out preand post-surgery, were subsequently analyzed employing the superimposition method using cranial base as reference.

Discussion and Conclusions: The TFA 3D cephalometry allows the assessment of various bones not only singularly but also considering the rightproportion with others.The advantages ofTFA cephalometry are mostly due to speed of execution thanks to a user-friendly interfacerequiring a learning curve that is similar to traditional 2D cephalometry methods.This 3D analysis was carried out evaluating the relationship between skeletal structures making the approach especially flexible and dynamic. The 3D visualization allowsthe determination of the extent of skeletal disharmony.

Multiplane 3D TFA allows the clinician to locatewhere major or minor skeletal discrepancies are found with respect to ideal parameters and is alsouseful in classifying skeletal intermaxillary relation. The superimposition method is highly intuitivebut does not provide information on the quantity and location of osteotomic movement.

Keywords: total face approach; superimposition; orthognathic surgery.

EXPERIMENTAL STUDY ON THE MECHANICAL PROPERTIES OF BIO-CONCRETE CONTAINING NATURAL SHELLS AS COARSE AGGREGATE SUBSTITUTE

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Abstract

The construction industry plays a crucial role in the economic and social development of nations, yet it also causes major environmental impacts. Concrete, one of the most widely used materials in this sector, requires large quantities of mineral aggregates such as sand and gravel. This excessive extraction contributes to the depletion of non-renewable natural resources and increases energy consumption. At the same time, agriculture generates a lot of waste that is rarely reused despite its potential value. In this context, reusing agricultural residues as substitutes for mineral aggregates in construction materials represents a promising solution to address both resource depletion and waste management challenges.

This study investigates bio-concrete incorporating natural shells (ANS) as a bio-filler, used as a partial or total replacement for conventional coarse aggregates. The effect of (ANS) incorporation on concrete performance was evaluated by replacing gravel by volume at different rates (0%, 20%, 50%, 80%, and 100%). Experimental tests were carried out to assess the mechanical properties of the resulting concretes, particularly their compressive and flexural strengths.

Key words: Construction sector, agricultural waste, Valorization, Bio-filler, Bio-concrete, Mechanical properties.

FROM CITY TO SEA: INFLUENCE OF HOUSEHOLD PLASTIC DISPOSAL PRACTICES ON MICROPLASTIC POLLUTION IN THE RUPSHA AND PASUR RIVERS

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Abstract

Plastic pollution has become a major environmental concern in rapidly urbanizing regions with inadequate waste management. Khulna City, Bangladesh, located near the Rupsha and Pasur rivers, illustrates how urban plastic usage and disposal practices contribute to microplastic (MP) contamination in adjacent aquatic ecosystems. This study integrates household-level assessments of plastic consumption and disposal behavior with analyses of MPs in surface water, sediment, and the intestine of a commercially important fish, the large-eye croaker (*Johnius plagiostomata*), in the upstream rivers. A total of 100 households from five socioeconomically diverse neighborhoods were surveyed to evaluate knowledge, attitudes, and practices (KAP) regarding plastic use. Environmental samples were collected from six river points using a Manta trawl net, Ekman grab, and fish dissection, followed by digestion, density separation, and microscopic analysis. Results revealed that although most residents were aware of plastic pollution, improper disposal was common, allowing waste to reach nearby waterways. In total, 2006.67 MP particles were identified, with mean abundances of 0.13 ± 0.02 MP m^{-3} in surface water, 132.47 ± 12.73 items kg^{-1} (dw) in sediment, and 0.822 ± 0.38 items g^{-1} in fish intestine. Fragments were predominant, and brown was the most frequent color (31.15%). Higher MP concentrations were found near densely populated sites, notably the Khulna Shipyard. The findings highlight a direct linkage between household plastic use behavior and riverine MP pollution, emphasizing the need for improved waste management, community awareness, and policy action to protect the Sundarbans ecosystem.

Keywords: Plastic pollution; Microplastics; Waste management; Riverine ecosystem; Khulna City, Bangladesh; Sundarbans.

POST-EDITING AS THE NEW TRANSLATION PARADIGM IN AI ERA: PRODUCTIVITY, QUALITY, AND ETHICS

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Abstract

Machine translation post-editing (MTPE) has grown in the last decade from a marginal or peripheral activity into the main workflow of the worldwide translation industry. Almost all translation clients and most translation agencies nowadays show greater tendencies towards post-editing rather than complete human translation since neural machine translation (NMT) systems have achieved unprecedented fluency, and their product is considered to be quicker and more affordable than what is offered by human translators. Such a shift in paradigm has raised important questions concerning productivity, quality, and ethical issues pertaining to the task of translators. Although studies may reveal that MTPE have raised productivity rate, its impact on translation quality, creativity, and job satisfaction is still under debate. Translators may feel a sort of tension between efficiency demands and their professional standards, as well as emotional exhaustion from modifying imperfect outputs of machines or AI. Through a combined viewpoint including technical, socio-economic, and ethical ones, the present study explores MTPE as a new paradigm emerging into the field of translation studies. The paper reviews recently conducted empirical studies on MTPE productivity and cognitive effort, surveys translator attitudes towards post-editing, and analyzes industry discourse that depicts MTPE as 'the future of translation'. Focusing on notions like translator agency, professionalism, and commoditization of linguistic labor, the current research contends that MTPE has redefined what is considered as 'translation work' and challenges long-held concepts of authorship and creativity. Finally, the paper puts forward a critical model of 'ethical post-editing'—one that balances technological efficiency with the translator's right to agency, recognition, and fair remuneration. The study concludes that translation pedagogy and professional associations need to engage more actively with MTPE ethics in order to make sure that automation improves rather than degrades translators' working conditions and professional identity.

Keywords: machine translation post-editing (MTPE); translator ethics; productivity; translation quality; translator agency; neural machine translation (NMT)

DESIGN OF SPEED CONTROLLER FOR THE FREQUENCY STABILITY OF SYNCHRONOUS GENERATOR BASED ON REAL-TIME DATA

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ABSTRACT

Introduction and Purpose: Electrical energy generation, transmission, and distribution must be maintained at a constant frequency to ensure reliability, quality, and equipment lifespan. Due to the direct relationship between frequency and generator synchronous speed, instabilities caused by loads have an impact on the frequency. In this study, a DC motor coupled with an industrial synchronous generator since DC motors exhibit linear behavior, enabling better speed and position control, and provides good torque-speed characteristics. Deterministic data has been verified with experimental data, and a controller design for speed regulation has been developed by creating an accurate model using this parameters.

Materials and Methods: A 1 kVA, 2-pole synchronous generator was coaxially coupled with a 2.2 kW DC motor, and the system operated using adjustable power supplies and motor drivers. In addition to speed data acquired from the encoder and current, voltage and power data obtained from the energy analyzer and oscilloscope have been recorded. Numerical analysis performed using the Runge-Kutta technique to obtain the equivalent circuit parameters of the machines and mechanical quantities such as the friction coefficient and moment of inertia. The feedback coefficients of the state dynamics for full-state feedback control have been calculated using the linear quadratic regulator (LQR) method. Then feedback coefficients are obtained using the symbiotic organism search (SOS) algorithm, a new, powerful, and population-based meta-heuristic method. To ensure accurate reference tracking, the input scaling coefficients for both controllers have been calculated.

Results: Feedback coefficients are optimized using the SOS algorithm, a new and powerful meta-heuristic method, and the controller performances are compared. The controller developed using SFA has shown effectiveness in overshoot and settling time parameters while maintaining rising time and peak time requirements. It has also been observed that the DC motor's current has a lower average magnitude and peak value. Furthermore, it has been observed that the disturbance effect imposed on the inertia moment that will occur during loading conditions is eliminated much more effectively.

Discussion: In this study, a meta-heuristic method is proposed for linear controller designs for speed regulation and the system dynamics are directly improved. As a result, a novel strategy was developed to promote population-based methods for designing control systems

Keywords: Power quality, frequency regulation, full state feedback control, linear quadratic regulation (LQR), symbiotic organism search (SOS) algorithm.

EFFECTS OF CHITOSAN–SILVER NANOPARTICLE-LOADED HYPERFORIN ON CELL VIABILITY IN A 6-OHDA-INDUCED PARKINSON'S DISEASE CELL MODEL

This study was supported by the Turkish Health Institutes (TÜSEB), Project No: 33401.

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ABSTRACT

Introduction and Purpose: This study aimed to investigate the neuroprotective potential of chitosan–silver nanoparticle–loaded hyperforin (K-AgNPs/Hyperforin) in an in vitro Parkinson's disease (PD) model using 6-hydroxydopamine (6-OHDA)-induced SH-SY5Y neuroblastoma cells.

Materials and Methods: SH-SY5Y cells were cultured in DMEM medium and differentiated for seven days using 10 µM retinoic acid. Following differentiation, cells were exposed to 6-OHDA (100 µM) for 24 hours to induce neurotoxicity. Experimental groups included control, 6-OHDA, hyperforin (25–100 µg/mL), K-AgNPs (1 µg/mL), and their combined treatments. Cell viability was determined using the CCK-8 assay by measuring absorbance at 450 nm and normalizing to control values.

Results: The 6-OHDA treatment significantly reduced cell viability to 64% compared to the control (100%). Exposure to K-AgNPs (95%) and hyperforin (97%) alone exhibited minimal cytotoxicity. Combined treatments notably improved neuronal survival, with HRP25 + 6-OHDA (78%), HRP50 + 6-OHDA (80%), HRP100 + 6-OHDA (82%), K-AgNPs + HRP25 + 6-OHDA (84%), and K-AgNPs + HRP100 + 6-OHDA (85%) showing marked restoration of viability. Statistical analysis confirmed that the combined formulations significantly enhanced cell viability compared to 6-OHDA alone ($p < 0.05$).

Discussion and Conclusion: These results demonstrate that hyperforin, particularly when combined with chitosan–silver nanoparticles, effectively attenuates 6-OHDA-induced cytotoxicity and promotes neuronal survival in SH-SY5Y cells. The enhanced neuroprotective efficacy may be attributed to synergistic antioxidant and anti-inflammatory actions. Collectively, these findings suggest that the K-AgNPs/Hyperforin complex may represent a promising therapeutic candidate for the prevention or treatment of Parkinson's disease.

Keywords: Hyperforin, K-AgNPs, 6-OHDA, SH-SY5Y, Parkinson's disease, Neuroprotection

SYNTHESIS AND CHARACTERIZATION OF SILVER, CHITOSAN, AND SILVER-CHITOSAN NANOPARTICLES

This study was supported by the Turkish Health Institutes (TÜSEB), Project No: 33401.

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ABSTRACT

Introduction and Purpose: Recent scientific studies have shown that silver nanoparticles (AgNPs) and chitosan nanoparticles (ChNPs) play an important role in many fields such as medicine, engineering, pharmacology, and medical science. As is well known, nanoparticles can be synthesized in sizes ranging from 1 to 100 nm. Nanoparticles are used in many different fields such as food, cosmetics, sensors, electronics, textiles, pharmaceutical applications, and space sciences. Silver and chitosan nanoparticles are among the most widely used nanoparticles. For this purpose, this study aims to synthesize and characterize AgNPs, ChNPs, and their composite chitosan-silver nanoparticles (Ch-AgNPs).

Materials and Methods: In this study, the synthesis and characterization of AgNPs and CNPs were performed, and in summary, the synthesis of Ch-AgNPs was carried out as follows. Chitosan (Ch) solution (1 mg/ml) was prepared in 1% acetic acid and the mixture was stirred at 45°C to obtain a homogeneous solution. The chitosan solution (25 mL) was then mixed with 0.1 N sodium hydroxide (NaOH) solution (75 mL) and 1 mL of 100 mM silver nitrate ($AgNO_3$) was added to the solution. To this solution, 0.04 M (20 ml) sodium borohydride was added and stirred for 30 minutes. Firstly, the colorless chitosan solution turned yellow and then brown, and Ch-AgNPs were synthesized. Finally, the solution is kept in an oven at 95°C for 24 hours.

Results: The synthesized AgNPs, ChNPs, and their composite Ch-AgNPs were characterized by FT-IR, UV–Vis, TEM, SEM. The UV–Vis spectrum showed a distinct surface plasmon resonance peak at 420 nm, confirming the formation of AgNPs. FT-IR spectra revealed characteristic –OH, –NH, and amide bands of chitosan, indicating preserved structural integrity. TEM and SEM analyses demonstrated spherical, homogeneously distributed nanoparticles with an average diameter of 25–150 nm. **Discussion and Conclusion:** In our study, the characterization of AgNPs and ChNPs separately was evaluated using FT-IR, UV–Vis techniques, as well as TEM and SEM results. Furthermore, the results of both the synthesized AgNPs and the Ch-AgNPs obtained by combining them were evaluated. Furthermore, the synthesis of Ch-AgNPs was carried out as described above, and the results were found to be consistent with each other.

Key Words: Silver nanoparticles; Chitosan nanoparticles; Chitosan-silver nanoparticles

EFFECTS OF FLAVONOID–NANOPARTICLE COMBINATIONS ON CELLULAR PROTECTION AND BIOAVAILABILITY

This study was supported by the Turkish Health Institutes (TÜSEB), Project No: 33401.

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ABSTRACT

Introduction and Purpose: Flavonoids are naturally occurring plant polyphenols with diverse pharmacological properties, including antioxidant, anti-inflammatory, cardioprotective, neuroprotective, anticancer, and immunomodulatory effects. However, their therapeutic potential is limited by poor solubility, instability, and low bioavailability due to rapid metabolism and sensitivity to environmental factors.

Materials and Methods: To overcome these limitations, flavonoids have been incorporated into various nanoparticle systems such as silver (AgNPs), gold (AuNPs), zinc oxide (ZnONPs), iron oxide, and chitosan nanoparticles. These nanocarriers enhance drug solubility, stability, and cellular uptake, and provide controlled and sustained release of bioactive molecules. Experimental in vitro and in vivo studies have been conducted to evaluate the effects of flavonoid–nanoparticle formulations on oxidative stress, inflammation, and apoptosis pathways.

Results: Several combinations exhibited significant biological activity. Chitosan–silver nanoparticles loaded with hyperforin improved neuronal survival in a 6-OHDA-induced Parkinson's model. Silver nanoparticle–loaded 18β-glycyrrhetinic acid protected testicular tissue in diabetic rats, while oleuropein–AgNPs prevented doxorubicin-induced testicular toxicity. Other formulations, including eugenol-, morin-, quercetin-, silymarin-, and dihydromyricetin-based nanoparticles, demonstrated enhanced antioxidant, antimicrobial, and anti-inflammatory activity.

Conclusion: The conjugation of flavonoids with nanoparticles represents a promising strategy to improve their pharmacokinetic and pharmacodynamic profiles. These nanoformulations offer potential therapeutic advantages for managing oxidative stress-related and degenerative diseases. Nevertheless, additional mechanistic and long-term preclinical studies are required to validate their safety and efficacy before clinical application.

Keywords: Flavonoids, Nanoparticles, Neuroprotection, Antioxidant, Oxidative stress, Drug delivery

BIOPHILIC AND DIGITAL FUSION: REDEFINING WELLNESS RESORT DESIGN IN THE POST-PANDEMIC ERA

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Abstract

The COVID-19 pandemic has profoundly reshaped the perception of wellness, safety, and connection within hospitality and resort design. As health consciousness and digital dependence continue to grow, the integration of biophilic and digital principles emerges as a new paradigm for post-pandemic wellness resorts. This study explores how the fusion of nature-based design elements with smart technologies can create restorative, contactless, yet emotionally engaging environments that support both physical and psychological wellbeing. Through qualitative analysis of case studies from leading wellness resorts in Asia and Europe, the research identifies key design strategies that balance sensory immersion, sustainability, and technological convenience. The findings highlight that digital systems such as adaptive lighting, AI driven environmental control, and immersive virtual nature experiences can enhance the therapeutic qualities of biophilic design when applied with sensitivity to human comfort. The study proposes a hybrid design framework where technology acts as an invisible layer that amplifies natural interactions rather than replacing them. This biophilic digital synthesis represents a holistic approach to wellness architecture, reflecting a shift from mere hygiene-driven safety to emotionally intelligent and sustainable hospitality experiences in the post-pandemic era.

Keywords: biophilic design, smart technology, wellness resort, human experience

CRITICAL ANALYSIS OF IFRS VALUATION TECHNIQUES: IMPACTS AND CHALLENGES

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Abstract

In the financial reporting environment, the International Financial Reporting Standards (IFRS) valuation methodologies are critically important as they enhance consistency, comparability**,** and transparency in the measurement and reporting of a corporation's assets, liabilities**,** equity, revenue, and expenses**.** IFRS introduces standardized valuation methods that make accounting information more reliable and accurate, allowing for rational comparisons between corporations.

This paper explores the valuation methods under IFRS—specifically the market, cost, and income approaches—as applied to various classes of assets, liabilities, and equity. Particular emphasis is placed on IFRS 9, IFRS 13, and IAS 40. This paper also aims to analyze the impacts of valuation methods introduced by International Financial Reporting Standards (IFRS) on financial statements.

The key findings reveal that the types of valuation methods introduced by IFRS strongly influence the decisions of financial market participants. Although IFRS offers a solid theoretical framework for valuation methods, applying it often requires significant professional judgment when observable market data do not exist. Additionally, improved disclosure strategies and the engagement of independent valuation experts can enhance the effectiveness of valuation methods under IFRS.

This paper will be of particular interest to academics and practitioners seeking a comprehensive understanding of the impact of IFRS valuation methods in real business environment and their implications for the reliability and accuracy of financial statements.

Keywords: International Financial Reporting Standards, Valuation Methods, Financial Reporting, Cost Approach, Market Approach, Income Approach

DATABASE MANAGEMENT SYSTEMS COURSE RELEVANCE TO INDUSTRY NEEDS: INSIGHTS FROM UNDERGRADUATE INFORMATION TECHNOLOGY STUDENTS IN A DEVELOPING COUNTRY

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ABSTRACT

Introduction and Purpose: A persistent global concern in IT education is the misalignment between academic Database Management Systems (DBMS) curricula and the practical, technological demands of the industry, particularly in developing economies. This study was therefore conducted to investigate the perceptions of Ghanaian IT students regarding the relevance and practical utility of their DBMS courses, with the objective of identifying key gaps and informing curriculum enhancement strategies.

Materials and Methods: A convergent mixed-methods design was employed. Data were collected via an online questionnaire from a purposive sample of 298 third- and fourth-year IT students at a public university in Ghana. Quantitative data were analyzed using descriptive statistics and the Mann-Whitney U test, while qualitative data underwent thematic analysis to identify emergent improvement themes.

Results: The findings revealed that students overwhelmingly (85.6%) perceived DBMS courses as relevant to their future careers and well-aligned with industry demands. However, significant gaps were identified, with only 50.7% of students reporting positive exposure to

modern database technologies (e.g., NoSQL, cloud platforms). No statistically significant gender-based difference was found in perceptions of course relevance ($U = 9774$, $p = 0.37$). Thematic analysis yielded five major areas for improvement: increased project-based learning, integration of modern technologies, stronger industry alignment, application-focused teaching, and structural course redesign.

Discussion and Conclusion: This study concludes that while the foundational relevance of DBMS courses is recognized, there is a clear imperative for modernization and greater practical immersion to fully bridge the academia-industry gap. The findings demonstrate that curriculum designers should prioritize integrating modern tools, expanding hands-on projects, and fostering industry collaboration to enhance the employability of IT graduates.

Key Words: Curriculum Alignment, Database Management Systems (DBMS), Higher Education, Industry Needs, Mixed-Methods, Practical Utility, Student Perceptions

BREAST CANCER DETECTION ON DYNAMIC INFRARED THERMAL IMAGES USING VESSEL ENHANCEMENT BASED PREPROCESSING AND TRANSFER LEARNING

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ABSTRACT

Introduction and Purpose: Breast cancer is the most common malignancy among women and the second most frequently diagnosed cancer worldwide. Early detection greatly improves treatment outcomes and survival, especially in localized stages. Conventional imaging modalities such as mammography, CT, MRI, and US are essential but limited by radiation exposure, high cost, and contrast agent requirements. These drawbacks have increased interest in cost-effective, non-invasive alternatives such as infrared thermal imaging (ITI), capable of detecting surface temperature variations linked to malignancy. This study proposes a deep learning framework that combines vessel enhancement–based preprocessing and transfer learning to optimize breast thermogram classification accuracy.

Materials and Methods: In this study, images obtained from the DMR-IR dynamic dataset were used, divided into two subsets containing 1,120 (DS-1) and 4,500 (DS-2) thermograms. To enhance the visibility of vascular structures and regional temperature variations, a vessel enhancement–based preprocessing approach was implemented. The preprocessing process was quantitatively evaluated using NIQE, PIQE, and BRISQUE metrics to determine optimal parameters. The combined use of CLAHE, Gaussian Blur, Scharr, and Sobel filters yielded the best scores, producing clearer vessel boundaries and distinct thermal gradients. The vessel-enhanced images were then used as inputs for transfer learning–based CNN models including ResNet50, DenseNet121, VGG16, and VGG19.

Results: Vessel enhancement–based preprocessing improved both image quality and classification accuracy. In DS-1, accuracy rose from 99.4% to 100% for ResNet50, from 96.11% to 98.89% for VGG16, and from 89.98% to 100% for VGG19. In DS-2, ResNet50 achieved the best performance, improving from 91.25% to 93.96%. These findings highlight the potential of vessel enhancement–based preprocessing as a practical strategy to improve the diagnostic accuracy and generalization of deep learning models in infrared breast thermography.

Key Words: Breast Cancer, ITI, Vessel Enhancement, Transfer Learning

THE EFFECT OF PREPROCESSING STEPS ON CLASSIFICATION PERFORMANCE IN MAMMOGRAM IMAGES

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ABSTRACT

Introduction and Purpose: Breast cancer remains one of the most common causes of cancer-related mortality among women. Early diagnosis through mammography is vital for improving treatment outcomes. However, mammographic images often contain noise and have low contrast, especially in women with dense breast tissue, which leads to a noticeable decrease in diagnostic performance. This study aimed to develop an integrated image preprocessing and deep learning-based classification approach to enhance the diagnostic quality of mammograms. The purpose was to significantly improve image clarity using filtering and contrast enhancement and to evaluate the impact of these preprocessing steps on classification performance, ultimately aiming for a high-accuracy computer-aided diagnosis system.

Materials and Methods: The INbreast dataset, consisting of 410 digital mammography images, was used. Initially categorized into six BIRADS types (1–6), the images were reclassified into three main groups—healthy, suspicious, and malignant—to improve model accuracy and generalization. Since the dataset size was limited, data augmentation techniques were applied, expanding the dataset to approximately 2000 images. Four spatial filters—Wiener, Gaussian, Median, and Bilateral—were applied for noise reduction, and CLAHE (Contrast Limited Adaptive Histogram Equalization) was used for contrast enhancement. The preprocessed images were classified using pre-trained CNN architectures including VGG16, VGG19, ResNet50, ResNet101, DenseNet121, and DenseNet201 via transfer learning. Performance was evaluated using PIQE, NIQE, BRISQUE, and standard classification metrics.

Results: Among all models**,** ResNet50 achieved the best performance with 98.3% accuracy**,** 98.2% F1-score**,** 98.3% sensitivity, and 99.2% specificity. The integrated approach of filtering and data augmentation significantly improved classification performance and discriminative capability when compared to training on unprocessed images, demonstrating its potential for reliable and automated breast cancer diagnosis.

Key Words: Mammography; INbreast; Deep Learning; ResNet50; Image Processing; Contrast Enhancement

FORECASTING ELECTRIC VEHICLE CHARGING DEMAND USING TIME SERIES AND MACHINE LEARNING METHODS

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ABSTRACT

Introduction and Purpose: The rapid adoption of electric vehicles (EVs) has increased the need for accurate forecasting of charging demand to ensure efficient energy management and sustainable infrastructure planning. Fluctuating user behaviors, temporal variations, and the uneven spatial distribution of charging stations pose significant challenges to network stability. Therefore, the present study aimed to model and forecast EV charging demand using an integrated framework combining time series analysis and machine learning algorithms, and to identify the most suitable model according to data characteristics.

Materials and Methods: Four datasets with different temporal resolutions (hourly, daily, weekly, and disaggregated hourly) were created from real EV charging transaction logs. Statistical methods including ARIMA, SARIMA, and Holt-Winters were compared with modern algorithms such as XGBoost, LightGBM, Gradient Boosting Regressor (GBR), Support Vector Regression (SVR), Long Short-Term Memory (LSTM), and Prophet. Model training and evaluation were carried out in both Python and MATLAB environments, with hyperparameter optimization applied to each. Performance metrics such as Root Mean Square Error (RMSE), Mean Absolute Error (MAE), Mean Absolute Percentage Error (MAPE), and coefficient of determination (R^2) were calculated for model comparison.

Results: The LSTM and tree-based algorithms (XGBoost and LightGBM) achieved the lowest error values across all datasets, while Prophet performed better in short-term trend estimation. The findings revealed that flexible deep learning and hybrid models are more effective in handling high-frequency and nonlinear demand patterns.

Discussion and Conclusion: This study demonstrates that machine learning and deep learning methods can significantly improve the accuracy of EV charging demand forecasting compared to traditional statistical approaches. These results provide a robust analytical basis for future smart grid management and charging network optimization.

Key Words: Electric Vehicle Charging; Time Series Forecasting; Machine Learning; LSTM; XGBoost

CONFIDENTIAL AND HOMOMORPHIC TECHNIQUES FOR SECURE CLOUD DATA PROCESSING

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Abstract

Protecting data confidentiality while enabling computation remains a fundamental challenge for cloud-hosted analytics. This paper analyzes advances in confidential computing (TEE-based) and Fully Homomorphic Encryption (FHE) and evaluates their practical interplay for real-world cloud services. We present a hybrid framework that routes workloads between TEEs and FHE depending on sensitivity, latency tolerance, and computational cost. The framework uses a privacy policy engine to automatically decide which privacy-preserving primitive to use: TEEs for interactive, low-latency analytics and FHE for high-assurance batch computations where leakage cannot be tolerated. Performance and security analyses—based on up-to-date benchmarks and threat models—show that the hybrid approach attains near-TEE latencies for most analytics while maintaining FHE-level confidentiality guarantees for critical operations. We discuss deployment challenges (attestation, side channels, and key management) and suggest architectural patterns for cloud providers to adopt these primitives in a composable way. The study highlights directions for accelerating FHE primitives and making TEEs robust in multi-tenant environments.

MULTI-GEOMETRY OPTIMIZATION OF MICROCHANNEL HEAT SINK TECHNOLOGY FOR ADVANCED SATELLITE THERMAL CONTROL

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Abstract

Thermal control is necessary in ensuring reliability of the satellite electronics which are in a harsh environment of space where there is no convective heat transfer. This study is aimed at optimization of microchannel heat sink (MCHS) technology based on several channel geometries to increase the efficiency of heat dissipation and flow. Three different geometries of rectangular, triangular, and trapezoidal type are modeled and computed using a simulation of the Computational Fluid Dynamics (CFD) in a steady and constant heat flux condition. This experiment assesses the significant parameters such as temperature distribution, thermal resistance, pressure drop, and Nusselt number working fluids comprised of deionized water, as well as nanofluids (Al_2O_3 -water, CuO -water). The simulation findings show the trapezoidal geometry has the best balance of performance in terms of greater heat removal capacity and fewer pressure losses, and nanofluid coolants have much better thermal conductivity than the conventional fluids. The results of this research can be used in designing lightweight, small, and energy-efficient thermal management systems that can be used in nanosatellite and CubeSat missions, to provide operational stability in microgravity and in vacuum environments.

Keywords: Microchannel Heat Sink (MCHS); Satellite Electronics Cooling; Thermal Management; CFD Simulation; Multi-Geometry Optimization; Nanofluid Coolants

A SMART AND SECURE DIGITAL PAYMENT PLATFORM FOR VENDİNG MACHINE SYSTEMS

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ABSTRACT

This research introduces a digital payment setup driven by AI, built for company vending machine networks. The system links contactless cards, built in payment devices, and a digital wallet, all running on a microservice structure. Its goal? To allow quick, safe, trackable payments at workplace spots like snack machines or lunch areas with no outside banks or middlemen involved.

The design uses separate layers handling transaction control, user validation, activity logs, plus live performance checks. It runs using both SOAP services along with REST APIs, working together behind the scenes. Artificial intelligence tools study how users act, spot weird transaction trends, or help create reports that guide choices about how systems run.

This work shows how AI-powered finance tech setups might deliver connected, clear, data-backed answers within self-contained payment environments, yet also suggest a lasting approach for growing uses like intelligent university grounds or digital business grids.

Key Words: Digital Payment Systems; Financial Technology; Vending Machine Systems; Digital Wallet

AI-BASED AGRICULTURAL PRODUCT EVALUATION AND TRADE PLATFORM

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ABSTRACT

Smallholder farmers and agricultural supply chain actors operating in rural areas face structural barriers to conducting secure and timely financial transactions. Fragmented production data, informal trading practices, seasonal income patterns, and the lack of digital payment tools hinder their effective participation in formal financial systems. Moreover, traditional banking infrastructure remains insufficient to address the unique needs of the agricultural sector.

This study proposes an artificial intelligence (AI)-powered financial technology (fintech) infrastructure specifically tailored for the agriculture sector. The proposed system aims to develop real-time, traceable, and secure digital payment processes through a mobile platform that collects field-based production and behavioral data from producers and buyers. AI algorithms analyze patterns such as delivery consistency and transaction timing to enhance payment reliability and bring transparency to commercial relationships.

By integrating fintech APIs, including digital wallets, escrow services, and payment guarantees, the system creates a trusted transactional layer between producers and buyers. This architecture increases trade security, reduces payment disputes, and enables more efficient cash flow management across the agricultural supply chain. Ultimately, the project aims to establish a scalable, data-driven digital payment infrastructure that contributes to the economic empowerment of agricultural producers.

Key Words: Agriculture; Mobile Payment; Agricultural Economics; Artificial Intelligence; Financial Technology

ANFIS BASED BRUSHLESS DIRECT CURRENT MOTOR SPEED CONTROL

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ABSTRACT

In this study, mathematical modeling was performed in MATLAB/SIMULINK environment for speed control of Brushless direct current motor (FDAM), which is widely used in many areas with its important features such as simple structure, high efficiency, high power-volume ratio and stable operation. Mathematical modeling of the traditional-PI control model and the adaptive network-based fuzzy inference system PI (ANFIS-PI) control models for FDAM speed control has been done separately. The resulting Conventional-PI and ANFIS-FI control models were simulated and compared in the MATLAB/SIMULINK environment. During the simulation, the performance of both controllers was evaluated by applying load and speed changes at different times. The changes in FDAM speed, depending on whether the applied load and speed values increase or decrease, are plotted comparatively for the traditional-PI and the proposed ANFIS-PI models. The results show that the proposed ANFIS-PI control model reaches the reference speed more quickly and exhibits lower oscillations than the traditional-PI control model.

Key Words: PI Control, Brushless DC motor, ANFIS.

RETHINKING THE TODARO MODEL IN VIETNAM'S CONTEMPORARY LABOR MIGRATION

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Abstract

Recent years have witnessed a pronounced reversal in Vietnam's internal labor migration trends, notably characterized by a significant movement of workers from major urban centers such as Ho Chi Minh City back to their rural hometowns. This phenomenon has occurred alongside sweeping administrative changes, including the merging of provinces and cities, fundamentally reshaping both labor markets and regional development frameworks. Traditional economic migration theories, most notably the Todaro model, which posits that migration decisions are primarily driven by expected income differentials between rural and urban areas struggling to fully explain this contemporary shift. Classic models often overlook the influence of institutional reforms, technological disruptions, social media narratives, and psychological responses to post-pandemic uncertainty.

This paper addresses this research gap by critically reinterpreting the Todaro migration model in the context of Vietnam's ongoing labor mobility changes and administrative reforms. It aims to identify the limitations of the expected income approach and to introduce a more holistic conceptual framework. Key findings highlight the importance of additional moderating and mediating variables. These include administrative barriers and incentives arising from provincial mergers, the accelerating impact of digital technology on both labor demand and lifestyle preferences, and the role of individual and collective perceptions shaped by social media and post-COVID psychological frameworks such as VUCA and BANI. This expanded perspective offers valuable implications for migration theory and labor policy, suggesting that future analytical and practical approaches must integrate economic, institutional, and psychosocial dimensions to adequately account for Vietnam's evolving labor migration landscape.

Keywords: Migration reversal; Todaro model; Administrative reforms; Digital & psychosocial mediators; Labor market adaptation.

ARTIFICIAL INTELLIGENCE LITERACY IN PUBLIC RELATIONS: A CONCEPTUAL FRAMEWORK FOR ETHICAL ARTIFICIAL INTELLIGENCE APPLICATIONS

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ABSTRACT

Introduction and Purpose: The growing presence of artificial intelligence (AI) systems in public relations has brought the need for ethical awareness and responsible practice to the fore. This study addresses these issues by examining AI literacy within the context of a conceptual model. The study assumes that AI literacy enhances the ethical awareness of public relations professionals at an individual level, leading to responsible practices that positively influence organisational trust and reputation. The proposed approach is based on a chain of influences progressing from individual competence to organisational outcomes.

Materials and Methods: This study is designed as a literature-based conceptual analysis. Drawing upon international ethical frameworks and pioneering research on AI literacy, including that from UNESCO (2022, 2023), the OECD (2024, 2025), Floridi (2024) and Long & Magerko (2020), the study examines the use of AI in public relations through the dimensions of AI literacy, ethical awareness, responsible practice, and organisational trust and reputation. The study examines the use of AI in public relations in terms of AI literacy, ethical awareness, responsible practice, and organisational trust and reputation. During this process, ethical, cognitive and organisational themes in the literature were analysed, resulting in the development of the proposed conceptual model.

Results: The proposed model demonstrates that AI literacy provides a solid theoretical basis for strengthening ethical awareness in the context of AI use in public relations and indirectly contributing to corporate trust and reputation through responsible practices. AI literacy is defined as the cognitive ability to recognise, interact with, and critically evaluate AI systems, as well as to use them ethically. Ethical awareness is the ability to identify value conflicts arising from interactions with AI systems and make decisions based on ethical principles. It is a prerequisite for responsible practice, promoting transparency, accountability, security, privacy, human-centred oversight and sustainability. The model, proposes AI literacy as a fundamental component of the ethical use of AI in public relations and aims to enhance the competencies of public relations professionals.

Keywords: AI Literacy; Ethical Awareness; Public Relations; Organizational Trust

DIGITALIZATION OF VEHICLE PART COMPARISON AND COST ANALYSIS

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ABSTRACT

Introduction and Purpose: This project aims to enhance efficiency in the automotive and manufacturing sectors by digitalizing the processes of vehicle part comparison and cost analysis. In the automotive industry, increasingly complex supply chain structures and rapidly changing cost dynamics make traditional manual analysis methods insufficient. Within this scope, the developed system reconstructs current manual analysis processes through a digital platform to generate more efficient, faster, and more accurate results.

Materials and Methods: The proposed system has been designed with a Python-based graphical user interface, enabling users to visualize and analyze cost and part comparison data interactively. Parametric analysis functions and data visualization tools have been integrated to support decision-making processes. The system architecture allows structured analysis of cost data related to vehicle components and facilitates comparison of parameters such as material type, production location, and supplier-based cost variation.

Results: By transforming manual cost and part comparison processes into a digital environment, the system provides a transparent and dynamic analysis infrastructure. Regional part cost variations and deviations between production points can be easily detected and visualized through the platform.

Discussion and Conclusion: The developed digitalization model contributes directly to reducing production costs and improving the overall performance of the supply chain. Beyond cost reduction, the system enhances strategic decision-making speed and accuracy for automotive manufacturers. This digital transformation approach creates a competitive advantage in terms of cost, transparency, and sustainability, offering a more agile response to the dynamic needs of the sector.

Key Words: Vehicle Parts, Cost Analysis, Digitalization, Automotive Industry, Data Visualization

DISRUPTIONS IN THE SKY: THE IMPACT OF EXTRAORDINARY EVENTS ON AIR TRAFFIC OPERATIONS AND SAFETY

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ABSTRACT

Introduction and Purpose: The purpose of this paper is to examine the operational, economic, and safety aspects of extraordinary events affecting air traffic (strikes, government shutdowns, natural disasters, wars, pandemics, cyberattacks, etc.). It also aims to analyze the resilience and recovery processes of air traffic management systems during crises and discuss future risk mitigation strategies.

Materials and Methods: This study adopts a quantitative case study design to examine the operational and safety impacts of extraordinary events—such as strikes, natural disasters, and system failures—on air traffic operations. The research integrates descriptive statistics, time-series analysis, and comparative evaluation of air traffic data before, during, and after selected crisis periods.

Results: The analysis showed that extraordinary events significantly disrupted air traffic operations. During the 2023 French ATC strikes, flights decreased by about 40% and average delays more than doubled. The 2024 FAA NOTAM outage halted departures for six hours, causing over 7,000 delays in one day. Natural disasters like the 2023 Türkiye earthquakes led to regional disruptions with a 10–14-day recovery period. The calculated Operational Resilience Index (0.55–0.85) indicated varying recovery capacities, while a strong correlation ($r = 0.81$) was found between disruption duration and recovery time. Overall, the results highlight that recovery speed depends largely on contingency preparedness and cross-agency coordination.

Discussion and Conclusion: Extraordinary events such as strikes, system outages, and natural disasters cause significant disruptions to air traffic operations by reducing flight volume, increasing delays, and challenging safety management. EUROCONTROL (2020-2024) data has shown that flight activity decreases by up to 60% during crises, and recovery times vary depending on the type of incident. While human-caused disruptions such as strikes enable faster recovery thanks to predictability, natural disasters have long-lasting impacts. The findings highlight the need for stronger contingency planning, redundancy, and cross-border coordination among air navigation service providers. Enhancing system resilience through redundant infrastructures, AI-based forecasting, and crisis-focused controller training will ensure operational continuity and safety even during unforeseen disruptions.

Key Words: Air Traffic; Operational Disruptions; Resilience; Extraordinary Events

DEVELOPMENT OF A WHITE CHOCOLATE PRODUCT WITH HIGH PISTACHIO CONTENT: THE DAMAK EZME PROJECT

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Abstract

In recent years, the premium content trend has become prominent, especially in the tablet chocolate segment. Within this trend, not only is there a high proportion of nuts (such as Hazelnut, Pistachio, Peanut, Almond, etc.) in moulded chocolates, but also moulded chocolates containing filling cream have begun to increase their market presence in the FMSG sector. The Damak Ezme product has introduced a unique approach to this trend by offering a high proportion of pistachio paste and pistachio pieces in a single component to consumers. Thanks to its pistachio content, Damak Ezme stands out as a chocolate with a natural green color.

The Damak Ezme product is fundamentally composed of white chocolate, pistachio paste, and pistachio pieces. However, unlike other pistachio-filled chocolates on the market, the white chocolate is mixed with Boz pistachio paste after the tempering process. This mixing process is achieved by combining the tempered white chocolate with the pistachio paste, which has been brought to the tempering temperature (30°C), using a dynamic mixer. After adjusting the pistachio paste ratio in the product content via a volumetric valve system, the molding phase begins, during which the pistachio pieces are added to the obtained white chocolate and pistachio paste.

Pistachio oil is susceptible to oxidation due to its high unsaturated fatty acid content (54%) and significant linoleic acid content (33%). To prevent oxidation and the subsequent development of a bitter taste during the product's shelf life, tocopherol mixtures with high alpha-tocopherol content have been used in the product formulation. Thus, the loss of high pistachio flavor throughout the product's shelf life has been prevented, and the stability of the product's texture has been ensured thanks to the CBI (Cocoa Butter Improver) used in the formulation.

Keywords: Premium Chocolate, Pistachio, Moulded Chocolate, Damak Ezme.

CONTENT ANALYSIS OF RESEARCH ON THE GEMS PROGRAM IN EDUCATION

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ABSTRACT

Introduction and Purpose: As the importance of innovative approaches in education increases, models that aim to actively participate in the learning process of students are coming to the fore. One of these models, the GEMS (Great Explorations in Math and Science) program, focuses on activity-based learning in science and mathematics teaching and encourages students to learn by doing and experiencing. Although the number of studies on the GEMS program in Turkey is limited, an increasing interest in this field has attracted attention in recent years. The aim of this research is to determine the trends in academic studies on the GEMS program in Turkey since 2012 and to reveal the general characteristics of these studies.

Materials and Methods: The research was carried out using content analysis design, one of the qualitative research methods. Within the scope of the study, Turkish articles, declarations and theses about the GEMS program were examined. Variables such as type, publication year, university where the study was conducted, department, gender of the author, keyword, research model, analysis method, sample selection and participant type of the studies were taken into consideration. The data obtained because of the coding process were classified into themes and the findings were interpreted descriptively.

Results: This study contributes to the field by revealing trends and application examples regarding the GEMS program in education. The research systematically examined how the GEMS program was implemented in the educational process and which variables it was associated with. The findings indicated that the GEMS approach can be applied to different courses and contributes positively to the students' learning process; it also increases interest in the course by supporting permanent and in-depth learning and strengthens the participants' desire to implement similar activities. In addition, it is thought that the results obtained will be a guide for researchers working in the field of education and useful in practice for teachers and program developers. Therefore, new research examining the effects and long-term outcomes of the GEMS program in different disciplines is recommended in the future.

Key Words: GEMS program, education, content analysis, activity-based learning, science education

REINFORCEMENT SHAPES AND DISTRIBUTION INFLUENCE ON FGM RESONANCE

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Abstract

In this paper, we investigate the nonlinear vibration behavior of shallow shells reinforced with carbon nanotubes (CNTs). The reinforcement is modeled as functionally graded (FG) along the radial direction of the shell. The material properties of these functionally graded carbon nanotube-reinforced composites (FG-CNTRCs) are assumed to vary through the shell thickness, estimated via a micromechanical model. Nonlinear partial differential equations are derived using the Von Karman geometric nonlinear theory, assuming the shell follows classical shell theory. The problem is reduced using the Galerkin technique, leading to a system of nonlinear equations with quadratic and cubic terms. These equations are solved using the multiple scales method (MMS) for simply supported boundary conditions. Our findings indicate that the carbon nanotubes distribution, mode shapes and the shell's curvature significantly influence the natural frequencies.

Keywords: Galerkin method; Functionally Graded Carbon Nanotube; Fundamental Linear Frequency, resonance.

EVALUATING ADAPTATION TECHNIQUES IN RESPONSE TO DROUGHT SEVERITY USING PLS-SEM APPROACH IN NORTHWEST BANGLADESH

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ABSTRACT

This study aims to explore the drought severity level and its impact on agriculture in the Northwest region of Bangladesh. Individual perception is crucial in drought mapping. For this research, A structured questionnaire was used to gather primary data from 600 farmers or households in five districts that are prone to drought: Rajshahi, Chapainawabganj, Naogaon, Nilfamari, and Dinajpur. The secondary data of five meteorological stations for annual rainfall and temperature of this region were collected from the Bangladesh Meteorological Department (BMD). By using different statistical tests (MK, Sen's slope test, etc.) and trend analysis, it is seen that the Dinajpur station has the highest precipitation, while the Rajshahi station receives the lowest amount of rainfall. The partial least squares structural equation model (PLS-SEM) was used to identify the factors impacting the farmers' adaptation methods. The survey found that farmers listed the following direct effects of droughts: decreased groundwater levels, deteriorating water quality, unemployment, lack of soil water, crop failures, higher production costs, and shift to off-farm activities. Numerous types of adaptation strategies are preferred by farmers, among them re-excavation of traditional ponds/khals/kharies, alternative enterprises of land use change, and extra income-generating activities are the most preferred strategies adopted by farmers in this region. In PLS-SEM analysis, the most important adaptations that farmers can use to improve their adaptation strategies are crop intensification, crop rotation, and planting date modification, alternative land use practices, additional revenue-generating activities, adoption of new technologies, drought-tolerant crop varieties, and irrigation facilities. Farmers' perceptions (performance score: 64.714) have the strongest positive impact (path coefficient: 0.254) on these adaptations (performance score: 63.480), according to the results of Importance-Performance Matrix Analysis (IPMA). This highlights the significance of cognitive factors in promoting adaptive behaviors.

Keywords: Drought, Adaptation Strategies, Agriculture, PLS-Modelling, Northwest Bangladesh.

ASSESSING THE ECONOMIC IMPACTS AND ADAPTATION BENEFITS OF CLIMATE CHANGE ON AGRICULTURAL SYSTEMS IN PUNJAB, PAKISTAN

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ABSTRACT

Climate change significantly affects agricultural systems, ecosystems, and food security, posing major challenges to sustainable development, especially in developing nations like Pakistan. Due to its distinct agro-ecological conditions and widespread poverty, Pakistan is particularly vulnerable to climatic fluctuations. This research focuses on assessing the climate vulnerability of the cotton–wheat cropping system and designing effective adaptation strategies for farmers to enhance their resilience. Both primary and secondary data were used, including socioeconomic surveys from 165 farmers across five districts in South Punjab, downscaled climate data, crop simulation models (APSIM and DSSAT), and global economic datasets. The Tradeoff Analysis Model for Multi-Dimensional Impact Assessment (TOA-MD) was applied to evaluate current and future vulnerabilities and the benefits of adaptation measures. Results show that cotton yields are highly sensitive to temperature increases, with significant reductions under hot-dry and hot-wet conditions due to heat stress. Conversely, wheat demonstrates greater resilience, as elevated CO_2 levels partly offset temperature-related yield losses. Climate-induced yield declines are projected to reduce farm income and increase poverty levels. Present adaptation practices include fertigation, improved irrigation systems, gene-variety imports, and crop insurance. Future recommendations emphasize genetic improvements, drought- and heat-tolerant varieties, enhanced water management, crop diversification, agricultural insurance, and farm mechanization. These interventions can mitigate adverse effects, improve productivity, and strengthen the sustainability of Pakistan's agricultural systems. Policymakers, researchers, and farmers must collaborate to develop integrated strategies promoting climate resilience and sustainable agricultural growth.

Keywords: Climate Change, Vulnerability, Adaptation, Sustainable Agriculture, Resilience, Pakistan

MACHINE LEARNING-BASED CLIMATE PREDICTION IN TURKEY: INTEGRATING CO_2, GLOBAL TEMPRATURE ANOMALY, AND PRECIPITATION DATA

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ABSTRACT

Introduction and Purpose: Understanding and predicting annual temperature anomalies is a critical challenge under global climate change, particularly for regions such as Turkey that are sensitive to both global greenhouse gas dynamics and local precipitation patterns. Reliable predictive models can provide early insights for adaptation strategies, yet available datasets are often limited in temporal coverage and resolution [1-4].

Materials and Methods: In this study, we compiled a multi-source panel (1981–2024) integrating atmospheric CO_2 concentrations [1], global temperature anomalies [2], and precipitation records from both CHIRPS [3] and European (E-OBS) datasets [4]. All variables were aggregated into annual domain averages for Turkey. To enhance predictive capacity, we engineered temporal features (lags, rolling means, and year-to-year deltas) and compared models with and without feature engineering. The temporal split was defined as 1981–2015 for training and 2016–2024 for testingt. Three machine learning approaches were evaluated: Linear Regression, Random Forest, and XGBoost [5,6], with model performance assessed via R^2, MAE, and RMSE metrics.

Results: Feature engineering improved model interpretability and highlighted key predictors, such as rolling averages of mean temperature and interannual temperature deltas. However, while training performance was strong ($R^2 > 0.85$ for tree-based models), test performance remained moderate (RMSE ≈ 0.7 °C). This suggests that short-term variability and extreme years are not fully captured by the available predictors. CO_2 levels and global anomalies, though significant at the global scale, proved less informative for local annual variations, whereas regional temperature and precipitation metrics provided more consistent signals.

Discussion and Conclusion: Our findings indicate that machine learning models can achieve reasonable accuracy in estimating annual mean temperature in Turkey with limited predictors, but capturing interannual fluctuations remains challenging. Expanding the dataset with higher-resolution climate drivers (e.g., circulation indices, land-surface variables, or remote sensing products) and extending the temporal horizon may substantially improve predictive power. This study therefore serves as a step toward robust regional climate prediction frameworks and provides a foundation for future integrative modeling efforts.

Key Words: Climate prediction in Turkey; CO_2 concentration; temperature anomaly; precipitation variability; machine learning; Random Forest; XGBoost; feature engineering

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DESIGN AND PERFORMANCE ANALYSIS OF A SINGLE-PHASE BOOST-TYPE POWER FACTOR CORRECTION (PFC) CIRCUIT

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ABSTRACT

Introduction and Purpose: Power Factor Correction (PFC) converters are widely utilized in AC–DC front-end stages of power electronic systems to increase efficiency and enhance power quality. This study presents the design and simulation of a single-phase boost-type PFC circuit delivering 380 V DC output at 800 W nominal and up to 1 kW peak power. The converter is designed to achieve near-unity power factor, reduced harmonic distortion, and low output voltage ripple, while ensuring operation within a 450 V DC overvoltage protection limit.

Materials and Methods: A boost-type PFC topology was modeled in MATLAB/Simulink under 230 V–50 Hz AC input. The design targeted 380 V DC output, 800 W power, 2.1 A maximum current, and less than 20 V peak-to-peak output ripple. Closed-loop Average Current Mode Control (ACMC) was employed for voltage regulation and sinusoidal input current shaping. Inductor and capacitor values, together with a 65 kHz switching frequency, were selected to minimize Total Harmonic Distortion (THD) and maintain dynamic stability.

Results: Simulation results indicated that the input current followed the sinusoidal input voltage with negligible phase shift, yielding a near-unity power factor. The THD was approximately 7%, and the output voltage reached 380 V with ±10 V steady-state deviation.

Discussion and Conclusion: The converter sustained stable operation under different reference values and exhibited adequate recovery during short-term voltage sags. These findings confirm that the proposed boost-type PFC converter operating at 65 kHz satisfies the requirements of 380 V DC output and 800 W nominal power with high efficiency and a power factor close to unity. The study demonstrates that the design is suitable as a compact and reliable solution for medium-power AC–DC applications, providing a solid foundation for further hardware implementation and EMI analysis.

Key Words: Power Factor Correction (PFC); Boost Converter; THD.

MARTIN CAMAJ'S "ALBANISCHE WORTBILDUNG" IN THE CONTEXT OF ALBANOLOGICAL AND INDO-EUROPEAN LANGUAGES

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Abstract

This paper explores Martin Camaj's influential linguistic study *Albanische Wortbildung. Die Bildungsweise der älteren Nomina* (1966) within the broader landscape of Albanological and Indo-European scholarship. In this work, Camaj offers a clear and systematic analysis of early Albanian word-formation, focusing on processes such as suffixation, prefixation, compounding, and conversion. His findings reveal close genealogical links between Albanian and other Indo-European languages—particularly through suffixes like *-im*, *-ti*, and *-men*, which show striking parallels with Latin, Greek, and Old Indic forms.

The paper revisits Camaj's achievement not only for its philological precision and consistent typology but also to reconsider its limitations—above all, its narrow focus on morphological patterns and the relative neglect of meaning and usage. At the same time, Camaj's study is read as more than a purely linguistic contribution: it reflects a form of exile scholarship that joins rigorous analysis with the preservation of cultural identity. As both a poet and an exile, Camaj saw language as a means of national self-expression and continuity.

For these reasons, *Albanische Wortbildung* remains a foundational work in Albanian linguistics—remarkable for its depth, discipline, and the human sense of purpose that underlies its scholarly rigor.

Keywords: Martin Camaj; Albanian linguistics; word formation; Indo-European studies; philology; exile literature; cultural identity

MODELING CHILD MALNUTRITION USING ADVANCED STATISTICAL METHODS: ANALYZING THE DETERMINANTS OF STUNTING, UNDERWEIGHT, AND WASTING

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Abstract

Child malnutrition is a serious health issue for children around the globe, and it is mostly dominant in developing countries. This study aims to assess the indicators of undernutrition, such as stunting, underweight, and wasting, in children who are between 0 to 59 months of age in Bangladesh. The data is collected from the DHS Program. After pre-processing the dataset, the study obtained 2451 cases to go through the analysis. A multivariate logistic regression and generalized additive model are used to find both linear and nonlinear relationships between maternal-socioeconomic factors and undernutrition indicators. The study found 23.01%, 20.0%, and 10.77% as stunting, underweight, and wasting, respectively. The majority (68.77%) of households are from rural areas, and at least 72.46% of mothers have passed secondary education. The estimated odds of children being underweight and wasted born to uneducated mothers are 2.453 and 2.038 times higher than those of mothers with at least secondary education, respectively. The odds ratios are 1.860 and 1.674 times higher for the poorest families to be stunted and underweight than for the children of the richest. The prevalence of underweight is higher in Bangladesh, and stunting and wasting are lower than the global statistics. The household wealth index and the size of the child at birth were positively associated with stunting and underweight. Children who are in rural areas have more chances of being stunted, underweight, and wasted than urban areas. Cesarean children are at increased risk of being stunted and underweight than children with normal delivery.

Keywords: Under-five children, Multivariate logistic regression, Generalized additive model, Child malnutrition.

FISH WASTE-DERIVED MICROORGANISMS FOR BIOPLASTIC DEGRADATION

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Abstract

The global shift toward biodegradable plastics, such as PLA and PHA, has emerged as a revolution in response to growing plastic pollution; however, their degradation under natural conditions remains slow and incomplete. Global bioplastic production is steadily increasing, with a 2024 capacity estimated at 2.47 million tons, and is expected to grow significantly in the years to come. This trend emphasizes the importance of proactive strategies to enhance biodegradation efficiency. In this study, screening of Fish waste microorganisms that are able to degrade bioplastics was performed. As the market demand and production capacity of bioplastics are rapidly increasing, it is essential to develop efficient biodegradation strategies in advance to ensure their sustainable management. Fish-associated microbiomes (such as *Bacillus spp., Staphylococcus spp. Shigella spp. Salmonella spp. Pseudomonas spp. Citrobacter spp. Salmonella enterica ssp. Arizonae Enterobacter spp. Acinetobacter spp*.) *being naturally capable of degrading complex organic substances, are therefore considered* promising sources for bioplastic degradation. Bacterial isolates from fish processing and market wastes identified through 16S rRNA sequencing exhibited up to 51% PHA and 46% PLA degradation within 15 days of incubation. The study highlights the biotechnological potential of indigenous bacteria collected from fish waste as eco-efficient agents for biopolymer degradation and valorization of fishery by-products.

Keywords: Fish waste, Biodegradable plastic, Sustainability, Microbiomes.

AR-MATH: AN AUGMENTED REALITY-BASED EDUCATIONAL GAME FOR ENHANCING MATHEMATICAL SKILLS IN CHILDREN

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ABSTRACT

Introduction and Purpose: Traditional methods of mathematics education often fail to engage young learners, leading to a lack of motivation and interest. This project explores the potential of augmented reality (AR) technology to create an immersive and interactive learning experience. The purpose of this study is to design and develop AR-MATH, a mobile game that aims to make arithmetic learning more engaging for children aged 5-12 by leveraging the visual and interactive capabilities of AR.

Materials and Methods: The game was developed using Unreal Engine 5 for core AR functionality and game logic, and Android Studio for mobile deployment and integration. The core gameplay involves mathematical problems (addition and subtraction) displayed on virtual balloons that spawn randomly from a user-selected point in the real world. Players must solve the problems before the balloons disappear. A scoring system with visual feedback (color change, confetti effects) was implemented. The development process involved project scoping, engine selection, interface design, and coding key functionalities such as balloon generation, random arithmetic operation creation, score management, and object interaction within the AR environment.

Results: A functional AR mathematics game for Android platforms was successfully developed. The application allows users to interact with virtual math problems overlaid in their physical space. Key features include a dynamic scoring system that provides immediate positive or negative visual feedback and particle effects (confetti) to reinforce correct answers, thereby enhancing user engagement.

Discussion and Conclusion: This study demonstrates that AR technology can be effectively utilized to create compelling educational tools that transcend traditional learning methods. By combining game mechanics with curriculum-based mathematics, the application provides a fun and innovative way for children to practice arithmetic. It is concluded that AR has significant potential to transform educational paradigms by making abstract concepts more tangible and engaging. It is recommended that such technologies be incorporated more widely into informal and formal learning environments to support child development.

Key Words: Augmented Reality (AR); Educational Game; Mathematics Education; Mobile Learning; Unreal Engine 5; Child Development

PACKSENTRY: A RASPBERRY PI-BASED INTELLIGENT SYSTEM FOR AUTOMATED PACKAGE DAMAGE DETECTION AND BARCODE TRACKING

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ABSTRACT

Introduction and Purpose: Physical damage to packages during logistics operations and the need for reliable package tracking present significant challenges in supply chain management. This study aims to develop an integrated, real-time system that automates both damage detection and barcode-based tracking using embedded hardware and deep learning.

Materials and Methods: The system utilizes a Raspberry Pi 4 equipped with a Camera Module V2 for real-time image capture. Two separate YOLOv8n models were trained: one for detecting physical package damage (using the "Package Damage Detection" dataset from Roboflow) and another for barcode detection (using the "Barcode Only" dataset). Image processing, barcode decoding (using Pyzbar for Code 128 format), and model inference run directly on the Raspberry Pi. A Flask-based web interface, connected to a PostgreSQL database, provides real-time monitoring, record management, and reporting capabilities (CSV/PDF export). The system architecture is modular, allowing for standalone operation without external servers.

Results: The damage detection model achieved an 87.3% success rate, while the barcode detection model achieved a 99.4% success rate. The integrated system successfully processes live camera feed, identifies damaged packages with a confidence threshold of 70%, reads barcodes, and logs all data with timestamps into the database. The web dashboard provides real-time visibility into package status, damage reports, and administrative functions. **Discussion and Conclusion:** The PackSentry system demonstrates that deep learning and embedded systems can be effectively combined to automate critical logistics inspection tasks. It reduces reliance on manual checks, minimizes human error, and enhances operational efficiency. Future work may include integration with conveyor belts, multi-class damage classification (dents, tears), cloud-based data management, and alerts (e.g., email notifications for damaged items). The system offers a scalable, cost-effective solution for modern logistics and warehouse automation.

Key Words: Package Damage Detection, Barcode Tracking, YOLOv8, Raspberry Pi, Deep Learning, Logistics Automation, Real-Time System, Embedded Systems

IMMUNE CELL TYPE CLASSIFICATION AND IDENTIFICATION OF CELL TYPE-SPECIFIC GENES USING MACHINE LEARNING IN SINGLE-CELL RNA-SEQ DATA WITH FUNCTIONAL ANALYSIS AND DRUG REPURPOSING

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Abstract

Single-cell RNA sequencing (scRNA-seq) has revolutionized the understanding of cellular heterogeneity, particularly in complex immune systems. In this study, we present a robust ensemble based computational pipeline to classify major immune cell types and identify biologically informative gene signatures using three publicly available and well-annotated Peripheral Blood Mononuclear Cell (PBMC) datasets: PBMC1, PBMC2, and PBMC3K. These datasets span nine canonical immune cell types and were preprocessed using the Seurat package with log-normalization and Z-score scaling to ensure data harmonization and comparability. We employed a one-vs-rest classification approach, independently applying three machine learning algorithms—Support Vector Machine (SVM) with a linear kernel, Random Forest (RF), and LASSO—for each cell type. Feature importance was derived through absolute SVM weight magnitudes, Mean Decrease Accuracy (RF), and non-zero coefficients (LASSO). A nested cross-validation strategy was adopted to determine the optimal number of top ranked genes, defined as the largest gene set before F1 score decline. The SVM model consistently outperformed other methods, achieving an average F1 score exceeding 98%, followed by RF with ~95%, and LASSO with a lower but reasonable ~90 % performance, particularly limited in classifying rare cell populations. The union of the top-performing gene sets from all models was subjected to Gene Ontology (GO) and KEGG pathway enrichment analysis using DAVID, revealing key immune-related biological processes and signaling cascades. To explore clinical relevance, gene-disease association networks were constructed by integrating data from OMIM, UniProt, and DisGeNET. Diseases were selected based on an adjusted Benjamini-Hochberg (BH) p-value threshold, and associated genes were identified using a kappa similarity score of 1 to ensure strong functional relatedness. Finally, gene-drug interaction analysis using DrugBank uncovered several potential repurposable therapeutic candidates targeting the identified genes. Our integrative pipeline demonstrates high accuracy and clinically meaningful gene signatures, paving the way in precision medicine.

Keywords: Immune cell classification, Machine learning, Feature selection, Drug repurposing, Gene enrichment analysis.

SUSTAINABLE STRATEGIES FOR REDUCING AMMONIA EMISSIONS FROM POULTRY FARMS

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Abstract

Ammonia (NH_3) emissions from poultry farms pose significant environmental and animal welfare issues, contributing to air pollution, eutrophication, and health risks for both birds and farmworkers. Worldwide, poultry farming is responsible for a considerable portion of agricultural NH_3 emissions, which are affected by various factors including housing types, litter management, feed ingredients, and climate conditions. Elevated temperatures and humidity, particularly in tropical regions, speed up the breakdown of uric acid in litter, leading to increased NH_3 volatilization. As a result, sustainable mitigation methods are receiving more focus to strike a balance between production efficiency and environmental responsibility. Optimizing dietary protein and supplementing diets with critical amino acids can decrease nitrogen excretion, thus reducing potential NH_3 emissions. Litter acidifiers like aluminium sulphate, ferric sulphate and sodium bisulphate have been proven to cut emissions by 80–94% by lowering manure pH and reducing microbial urease activity. Adding zeolites further promotes ammonium retention and nitrogen absorption in manure. Vegetative environmental buffers (VEBs) significantly reduce ammonia emissions by nearly 50% through dispersion and absorption mechanisms. Biofiltration systems and multi-stage acid scrubbers can achieve up to 95% efficiency, but their high costs may require government assistance for wider implementation. Models like AMCLIM–Poultry indicate that climate change will likely exacerbate NH_3 emissions in warm and humid areas, highlighting the necessity for adaptive management strategies in tropical environments. Thus, a combination of dietary strategies, housing design, litter treatment, ventilation improvement, and vegetative buffering is crucial for achieving sustainable poultry farming. These strategies work together to reduce NH_3 losses, enhance air quality, and protect both environmental and public health.

Key Words: Ammonia emission, Poultry farming, Sustainable management, Mitigation strategies

THE IMPORTANCE OF THE DATA IN NATIONAL STRATEGIES

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Abstract

Objective of this research is related with importance of the evidences in preparation of the national strategies. The data have a crucial role in identification of the need to be fulfilled in public level. The methodology used in this work is qualitative methodology. The data are based in treating of the national strategies in Albania in terms of using the data in a strategic document to build the strategic objectives and key performance indicators. The evidences show a hybrid approach in terms of using the data. Some sections of the strategies are based in evidences whereas some others are not based in evidences and have included information that is not measured from the data that make difficult the measuring of the performances of the strategic document. So, we suggest using the evidences during the preparation of the strategies because this way can be identified the needs that should be fulfilled in public dimension. The data are very important for identifying the real public needs, as well as for setting the strategic objectives and measuring the performance of the strategy implementation. A strategy that is not based in evidences will be not effective and not efficient in terms of fulfilling the public needs and successful implementation of the strategic actions.

QUALITY MANAGEMENT SYSTEMS AS ENABLERS OF DIGITAL TRANSFORMATION: A CONCEPTUAL FRAMEWORK FOR SUSTAINABLE ORGANIZATIONAL EXCELLENCE

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ABSTRACT

Introduction and Purpose: Digital transformation has become a strategic necessity for organizations aiming to enhance competitiveness, efficiency, and sustainability. Yet, many digital initiatives fail due to the absence of structured governance and standardized management practices. This study explores how Quality Management Systems (QMS), evolving from ISO 9001:2015 toward ISO 9001:2026, can act as strategic enablers of digital transformation and sustainable excellence. The purpose is to develop a conceptual framework that integrates quality, digitalization, and sustainability principles under the emerging paradigm of "Quality 5.0."

Materials and Methods: The study employs a conceptual and theoretical methodology based on a comprehensive review of academic and standardization literature, including ISO, EFQM, and Industry 5.0 frameworks. By synthesizing insights from systems theory and socio-technical systems approaches, the research constructs the Sustainability and Digital Quality Management System (SDKYS) model. This model conceptualizes the interaction between leadership, governance, data-driven process management, innovation, and human–technology collaboration as foundations of sustainable digital transformation.

Results: The findings indicate that integrating QMS principles with modern standards such as ISO 56000 (Innovation Management), ISO 42001 (Artificial Intelligence Management), and ISO 37000 (Governance of Organizations) strengthens organizational resilience, transparency, and innovation capability. The SDKYS model reveals that QMS can evolve from a compliance-oriented system to a strategic architecture supporting predictive analytics, continuous improvement, and ethical digitalization. This integration bridges the gap between operational excellence and sustainable value creation, positioning quality as the hidden engine behind digital transformation.

Key Words: Quality Management Systems; Digital Transformation; Sustainability; ISO Standards; Quality 5.0; EFQM 2025; SDKYS Model

MOTOR SPEED CONTROL WITH FRACTIONARY ORDER PID CONTROLLER BASED ON WILD HORSE OPTIMIZATION ALGORITHM

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ABSTRACT

Direct current (DC) motors are widely used in industrial applications due to their advantages over other motor types. Some DC motor applications require more advanced control strategies for speed and position. Traditional PID controllers, due to their simplicity, constitute the majority of control systems worldwide. However, due to their inefficiency in nonlinear applications, some structural innovations and metaheuristic algorithm techniques have been adopted to cope with the uncertainties/nonlinearities present in the system. In this study, a fractional-order PID (FO-PID) controller is proposed for a DC motor drive system. The aim is to minimize the transient response characteristics of the DC motor drive, such as rise time, settling time, and oscillation, for better speed response. Therefore, to achieve optimal control, the parameters of the proposed controller are obtained using the Wild Horse Optimization Algorithm (VAOA). İyileştirme sırasında ITAE amaç fonksiyonu kullanılmıştır. Önerilen denetleyicinin performansını vurgulamak için geleneksel PID denetleyici ile karşılaştırma yapılmıştır. In the comparisons made, effective results were obtained for the proposed controller.

Key Words: FO-PID Controller, DA Motor Speed control, Wild Horse Optimization Algorithm.

VERTICAL SKELETAL ASSESSMENT IN ORTHOGNATHIC SURGERY USING 3D CEPHALOMETRY

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ABSTRACT

Aim: Cephalometry is fundamental in diagnosis, analysis, and planning of orthodontic surgical treatment as it reveals skeletal relationship between the upper and lower jaw as well as facial aesthetic parameters. Nevertheless, 3D cephalometry has still not become the exam of choice in orthognathic treatment even though today CBCT (Cone Beam Computed Tomography) is routinely used in other branches of dentistry. The aim of this study is to evaluate the advantages and disadvantages of the two methods in orthognathic surgery.

Materials and Methods: In a sample of 13 patients undergoing bimaxillary orthognathic surgery a chin-vertex CBCT exam was prescribed prior to orthodontic treatment (OT)and 12 months after surgery (T1). The DICOM files uploaded to MaterialiseSimplant Ortho software pro 2.1

(Materialise Co., Leuven, Belgium) were analyzed following the multiplane 3D Total Face cephalometry protocol (TFA).

Results: Results comparing pre-op and post-op TFA 3D cephalometry, were then evaluated considering reference values reported in literature. The CBCT, carried out preand post-surgery, were subsequently analyzed employing the superimposition method using cranial base as reference.

Discussion and Conclusions: The TFA 3D cephalometry allows the assessment of various bones not only singularly but also considering the rightproportion with others.The advantages ofTFA cephalometry are mostly due to speed of execution thanks to a user-friendly interfacerequiring a learning curve that is similar to traditional 2D cephalometry methods.This 3D analysis was carried out evaluating the relationship between skeletal structures making the approach especially flexible and dynamic. The 3D visualization allowsthe determination of the extent of skeletal disharmony.

Multiplane 3D TFA allows the clinician to locatewhere major or minor skeletal discrepancies are found with respect to ideal parameters and is alsouseful in classifying skeletal intermaxillary relation. The superimposition method is highly intuitivebut does not provide information on the quantity and location of osteotomic movement.

Keywords: total face approach; superimposition; orthognathic surgery.

FROM CINEMATIC VESTIBULAR CUES TO ARCHITECTURAL AFFORDANCES: A PHENOMENOLOGICAL AND ECOLOGICAL PERSPECTIVE

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ABSTRACT

Introduction and Purpose: In recent years, the role of embodied experience and sensory-affective cognition has gained prominence in architecture and spatial design. Traditional approaches often emphasize visual form, yet current research highlights the vestibular system's influence on spatial perception. Cinema—due to its immersive and bodily impact—offers a unique medium for exploring these sensations. This study examines cinematic scenes that activate vestibular perception—balance, motion, disorientation—and investigates how they can inspire architectural affordances. Anchored in phenomenological and ecological perception theories, the aim is to bridge cinematic embodiments and spatial design strategies, proposing a framework that positions bodily perception as a generative design tool.

Materials and Methods: This qualitative study adopts a scene-based mapping method informed by phenomenology and Gibsonian ecological psychology. Ten films were selected for their spatial intensity and motion dynamics, including Gravity (2013), Inception (2010), Vertigo (1958), The Grand Budapest Hotel (2014), Enter the Void (2009), Roma (2018), Tenet (2020), The Revenant (2015), Children of Men (2006), The Shining (1980). For each selected scene, a seven-column analytical matrix was developed, encompassing scene description, sensory-vestibular effect, phenomenological reading, user action, architectural translation, ecological perception, and affordance example.

Results: The analysis revealed recurring vestibular-spatial motifs and their design equivalents: tilted frames inspired sloped or suspended structures; continuous shots led to flowing layouts; spiral movements evoked vertical circulation; gravity loss informed floating forms. The affordances found in the scenes—like edges that can be grasped or volumes that can be climbed—reflect Gibson's idea that perception is shaped by how our body connects with the environment. **Discussion and Conclusion:** Cinematic vestibular experiences offer architects new insights into embodied space. This study proposes a framework combining phenomenology and ecological realism to support experience-centered design. Translating cinematic embodiment into architectural strategies enriches spatial innovation through sensory responsiveness and user-action affordances.

Key Words: Vestibular Perception in Cinema; Embodied Spatial Experience; Phenomenological Film Analysis; Architectural Affordances; Scene-Based Mapping

DESIGN AND OPTIMIZATION OF DOXYCYCLINE-LOADED NATURAL ZEOLITE-ALGINATE HYBRID MICROPARTICLES

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ABSTRACT

Introduction and Purpose: The clinical efficacy of antibiotics is often limited by poor bioavailability. Therefore, development of advanced carrier systems protecting the drug-actives, enhancingstability and allowing controlled release at the target site is necessary. The present study aimes to design and optimize a hybrid biomaterial system composed of doxycycline (DOX)-loaded natural zeolite (clinoptilolite) incorporated within an alginate matrix.

Materials and Methods: The natural zeolite was treated thermally at 200°C for 5 h. After loading with DOX, the microencapsulation system in the biopolymer (alginate) was optimized by central composite design (CCD) of response surface method (RSM) by means of Minitab statistical software 22 (Minitab Inc., State College, PA, USA). The process parameters of the ionic gelation system with their ranges were zeolite/biopolymer ratio (0.5-2 w/v), sodium alginate concentration (1-2%, w/v), calcium chloride concentration (2-15%, w/v), and crosslinking duration (10-30 min). The optimization was performed to maximize the encapsulation efficiency (EE).

Results: The yield (EE) of the DOX-loaded zeolite microparticles varied from 1.25% to 96.93%. The model fitting was high with satisfactory results ($p<0.0001$, R^2=99.17%, adjusted R^2=98.39% and predicted R^2=95.60%). Pareto chart of the standardized effects showed that gelling medium concentration was the most significant variable for this system, followed by the interaction of time and gelling medium and the ratio of zeolite to biopolymer. The optimal conditions obtained by Minitab software were: 0.895 (w/v) zeolite/alginate ratio, 1.667% alginate, 10.936% calcium chloride (gelling medium) and 23.267 min. These conditions yielded an experimental EE of 99.18% with less than 1% prediction error.

Discussion and Conclusion: The findings of this study demonstrated that ionic gelation using sodium alginate and thermally treated clinoptilolite-based natural zeolite produced highly efficient encapsulation of DOX. The results provided a reliable background for further studies such as drug release.

Key Words: Doxycycline; biopolymers; clinoptilolite-based zeolite; biomaterials; optimization.

BORON-DOPED NANOTUBE TIO_2 AS AN EFFECTIVE CATALYST FOR CO_2 CONVERSION IN AN ATMOSPHERIC AMBIENT

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ABSTRACT

Introduction and Purpose: Since carbon dioxide (CO_2) is a cheap, abundant, harmless molecule and one of the primary greenhouse gases, it has attracted a lot of attention. One of the most studied applications of CO_2 is the coupling reaction between CO_2 and epoxides, which yields cyclic carbonates. Cyclic carbonates are frequently used as polar aprotic solvents, electrolytes in lithium-ion secondary batteries, and intermediates in chemical synthesis. Successful industrial methods for generating cyclic carbonates from the CO_2/epoxides coupling process have existed for more than 50 years. This study aims to convert carbon dioxide gas, which causes global warming, into useful products in the atmospheric environment.

Materials and Methods: The synthesis of cyclic carbonates from CO_2 with epoxides was carried out by adding boron-doped nanotube TiO_2 ($4.5x10^{-5}$ mol), epichlorohydrin ($4.5x10^{-2}$ mol) and Dimethylaminopyridine (DMAP) ($9x10^{-5}$ mol) as catalysts into a 25 mL stainless steel reactor for the reactor system and into the Schlenk system for the atmospheric environment. Isolated yields were calculated with GC (Agilent 7820 A) device.

Results: In this study, boron-doped nanotube TiO_2 was used as catalyst. In the conversion of CO_2 to cyclic carbonate with epichlorhydrin, boron-doped nanotube TiO_2 compound was used as a catalyst, and their effectiveness was investigated both in the atmospheric ambient and in the reactor ambient. The effect of boron-doped nanotube TiO_2 catalyst on the conversion was investigated in both ambients. **Discussion and Conclusion:** This boron-doped nanotube TiO_2 is 45.8% yield obtained in the atmospheric environment is also quite successful new in the literature.

Key Words: Boron doped catalyst; CO_2 coupling reaction; Epoxides; Cyclic carbonates

THE DRAMATURGY OF AWARENESS: PEDAGOGICAL FUNCTIONS OF REFLECTIVE-PROVOCATIVE QUESTIONS IN THE ARCHITECTURAL DESIGN STUDIO

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ABSTRACT

Introduction and Purpose: Architectural design studios function both as spaces of production and as pedagogical environments where students' ways of thinking and acting are continuously shaped. Within this setting, questioning emerges as a central mode of interaction. However, the dominance of closed or directive questions often limits students' ability to construct their own context and exercise intellectual autonomy. This paper aims to conceptualize reflective-provocative questioning as a directional pedagogical strategy that fosters awareness, ownership, and responsibility in architectural education.

Materials and Methods: The study adopts a conceptual inquiry approach, combining insights from educational theory, design pedagogy, and long-term studio experience. No empirical dataset is presented; instead, reflective observations from studio teaching are synthesized with existing literature to generate a conceptual framework. A representative studio interaction is used illustratively to demonstrate how reflective-provocative questions function as triggers of students' awareness and orientation.

Results: The analysis identifies three interconnected components that define the pedagogical value of reflective-provocative questions: awareness dramaturgy, which enables students to notice and reflect upon their own cognitive shifts; internal ownership, which fosters emotional and intellectual investment in the design process; and intellectual responsibility, which encourages students to justify, defend, and further develop their design decisions. Together, these elements transform reflective-provocative questions from a mere communicative technique into a strategic tool for cultivating autonomy and creativity. **Discussion and Conclusion:** The proposed framework highlights the potential of direction-oriented pedagogy in architectural studios. While not empirically tested, the model demonstrates strong conceptual grounding and practical resonance with studio dynamics. The contribution of this paper lies in redefining reflective-provocative questioning as a pedagogical dramaturgy that sustains creative tension, deepens student engagement, and can be adapted beyond architecture to any discipline that relies on creative problem solving.

Key Words: Architectural Pedagogy; Reflective-Provocative Questioning; Awareness Dramaturgy; Student Autonomy; Architectural Design Studio

PULMONARY HYPERTENSION AND ITS ASSOCIATED FACTORS IN NON-DIALYSIS-DEPENDENT CHRONIC KIDNEY DISEASE PATIENTS IN AFGHANISTAN

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ABSTRACT

Introduction and Purpose: Pulmonary hypertension (PH) is an independent risk factor for all-cause mortality in patients with chronic kidney disease (CKD). Despite its clinical significance, data on PH among non-dialysis-dependent CKD patients in low-income settings remain limited. This study aimed to explore the prevalence of PH and identify its associated factors among non-dialysis-dependent CKD patients in Andkhoy, Afghanistan.

Materials and Methods: A cross-sectional study was conducted among non-dialysis-dependent CKD patients at a hospital in Andkhoy. PH was assessed using Doppler echocardiography and defined as an estimated pulmonary artery systolic pressure (PASP) >35 mmHg based on tricuspid regurgitant jet velocity. Logistic regression analyses were performed to identify factors associated with PH.

Results: A total of 773 participants were enrolled (mean age = 52.4 ± 17.5 years; 57.1 % male). PH was detected in 23.0% of participants. In multivariable analysis, older age (per 10-year

increase), anemia, reduced left ventricular ejection fraction (LVEF), and lower estimated glomerular filtration rate (eGFR) were independently associated with PH.

Discussion and Conclusion: PH is prevalent among non-dialysis-dependent CKD patients in Afghanistan, with a notable association to advanced age, anemia, impaired cardiac function, and worsening kidney function. Given the significant clinical implications of PH, these findings underscore the importance of routine screening for PH in CKD patients in Afghanistan. Early detection and management of PH could help improve patient outcomes, reduce mortality risk, and guide more effective treatment strategies for this vulnerable population.

Key Words: Pulmonary hypertension, CKD, Doppler echocardiography, Afghanistan

AI-DRIVEN MUSIC COMPOSITION: EXPLORING DEEP LEARNING MODELS FOR CREATIVE SOUND GENERATION

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Abstract

Artificial intelligence (AI) has recently emerged as a powerful paradigm in creative domains, including music composition. In this paper, we investigate and experimentally evaluate contemporary deep learning models for generating novel musical content, focusing on transformer, variational auto encoder (VAE), generative adversarial network (GAN), and diffusion architectures. We train or re-use implementations of representative systems on standard symbolic music corpora (e.g., MAESTRO, Lakh MIDI) and conduct both objective (statistical, feature-based) and subjective (listener surveys) evaluations. Our results show that transformer-based models often outperform VAEs and GANs on long-term structure metrics, while diffusion models are becoming competitive in terms of audio realism. In a blind listening test with 117 participants, transformer-based outputs achieved higher mean "musicality" scores ($\mu = 3.8$ on 5-point Likert) compared to other models (e.g. GAN: $\mu = 3.2$) (Ferreira et al., 2023). We also analyse pitch/harmony distributions, n-gram entropies, and structural coherence (e.g. repetition, motif reuse). We discuss challenges including evaluation difficulties, overfitting to training style, and creative diversity limitations. Finally, we propose future research directions toward human-AI co-composition, explainability, style fusion, and interactive real-time systems.

Keywords: Creative AI; Deep Learning; Music Generation.

SUSTAINABLE MINERAL PROCESSING STRATEGIES FOR ENVIRONMENTALLY FRIENDLY MINING

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ABSTRACT

Sustainability in the mining sector goes beyond minimizing environmental damage; it emphasizes the efficient utilization of natural and energy resources to ensure long-term ecological, economic, and social balance. In Türkiye, the implementation of green initiatives within mineral processing plants plays a crucial role in achieving these objectives. Typical practices include the installation of high-pressure grinding circuits for enhanced energy efficiency, the adoption of closed-loop water systems and reverse osmosis for wastewater recovery, and the replacement of traditional flotation reagents with biodegradable, plant-based alternatives. According to recent studies, nearly 60% of the total energy consumed in mining originates from mineral processing operations, while approximately 2–3 m^3 of water is required per ton of ore processed, creating substantial environmental pressure. These challenges highlight the urgent need for innovative, sustainable solutions. In alignment with the European Green Deal and Türkiye's 2053 Net-Zero Carbon target, this study reviews current environmentally responsible practices and explores emerging technological approaches, including artificial intelligence-based process optimization, digital modeling, and the integration of optical and sensor-assisted separation systems. Collectively, these developments pave the way toward eco-efficient, low-carbon, and intelligent mining operations that contribute to the global transition toward a sustainable and circular mineral economy.

Key Words: Sustainability; Green Mining; Flotation; Process Optimization; Carbon Footprint

POWERS CONTROL OF WIND TURBINE BASED ON DOUBLE FIELD INDUCTION GENERATOR

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ABSTRACT

Introduction and Purpose: While a vital source of clean energy, wind power's economic viability is challenged by the inherent variability of the wind resource, Today, the development of wind energy conversion systems has encouraged the researchers to make efforts for improving the efficiency of electromechanical conversion and the energy generated quality. in general, variable speed operation in the wind conversion system is widely used for good performance with a better energy quality generation.

Materials and Methods: In our work, we are interested in the control of the active and reactive powers of the doubly feild asynchronous generator (DFIG) driven at a speed around that of synchronism. The objective is to minimize the interaction between the two powers and ensure good decoupling for indirect control modes by developing a robust controller. First, we started by MPPT strategy simulation to obtain maximum power after modeling all conversion system components, then a vector control method is applied for powers based on classical controller. Finally, Neural method based on vector control technique using MPPT (Maximum Power Point Tracking) strategy to extract maximum power, all of proposed methods are presented with simulation results by MATLAB/Simulink.

Results: We make a performance test of the first control method for adjusting powers with reference by PI controllers for a complete model of DFIG, and for the second parts, and to improve the performance of this system, and for comparison. Neural controllers were used with single-layer, hidden neural network structure containing three neurons using sigmoid activation function. Finaly sufficient results are obtained in dynamic handling and response to powers regulations. So, we conclude that the proposed methods give good and high-level performance and ability. The fluctuations in the power are due to the PWM inverter and the dependence of these powers slip.

Discussion and Conclusion: From the results obtained by proposed methods, we obtain good tuning performance that ensures normal operation of the studied system and regulators efficiency. the rotor voltage and currents respectively. There forms are sinusoidal with no harmonics and ensure clean energy supplied or absorbed by the DFIG. The technique used to maximize speed and extract the maximum power in zone two of system operation is confirmed. And in the context of improving the performance of the system studied by the insertion of neural regulators, this is the main objectives of our paper. Good results were obtained in terms of overshoot and response time compared to PI regulators and remain insensitive to system variations during operation, which ensured good drive of the generator by the rotor speed. The study and modelling of the various wind system components for distributed generation of electricity and different DFIG control systems representing the production of this energy have been presented in this paper.

The simulation results show the effectiveness of all proposed method and regulator used, in terms of response and robustness. For the future work, we suggest the realization of a model MPPT strategy to obtain maximum power after applying other Artificial Intelligence methods.

Key Words: Renewable energy; wind turbine; DFIG; vector control; neural network; MPPT.

SYNERGISTIC EVALUATION OF AN AQUATIC HABITAT EMPLOYING BIO-ACOUSTIC SURVEILLANCE AND PHYSICOCHEMICAL PROFILING

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ABSTRACT

This investigation demonstrates a unified methodology for assessing freshwater ecosystems by merging bio-acoustic surveillance with comprehensive water quality profiling. The fieldwork was executed within a research pond at Shanghai Ocean University, Shanghai, China. We gathered key hydrological metrics—temperature, pH, oxidation-reduction potential (ORP), salinity, and total dissolved solids (TDS)—utilizing a multiparameter probe, with subsequent data processing performed in R Software. Simultaneously, we deployed a Lowrance Active Target live-sonar unit to record the underwater soundscape. The resultant acoustic data were examined using Sonic Visualizer Software, enabling the detection of biological organisms and the characterization of their acoustic emissions, which pointed to the presence of fauna like fish and shrimp.

Results identified a significant correlation between the water column's depth and its thermal properties. Furthermore, the acoustic analysis effectively delineated the habitat's soundscape, offering a non-intrusive technique for quantifying biological presence and behavior. This study highlights the power of integrating physicochemical and bio-acoustic tools to achieve a holistic perspective of aquatic ecosystem dynamics. The presented framework is a robust, adaptable model for efficient ecological surveys and long-term monitoring in diverse inland and coastal waters.

Keywords: Bioacoustics, Water Quality Profiling, Live Sonar, Ecological Surveys, Soundscape.

PRODUCTIVITY STRATEGIES FOR SMALL AND MEDIUM-SIZED ENTERPRISES IN EMERGING ECONOMIES: FROM POLICY DESIGN TO PERFORMANCE

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ABSTRACT

Productivity growth among Small and Medium-Sized Enterprises (SMEs) is a cornerstone of sustainable development in emerging economies. Using a comparative policy lens, this study examines how productivity enhancement strategies are designed and implemented in Turkey, Malaysia, Indonesia, Mexico, and South Africa, and analyzes the translation of policy intent into firm-level performance. We identify three pillars of SME productivity: innovation capacity, institutional support, and access to finance. Evidence indicates that countries with cohesive and continuous support systems, such as business development service networks and innovation subsidies (e.g., structured technology-upgrade and innovation programs in Turkey and Malaysia) are more successful in linking policy design to measurable performance improvements. Blended and guaranteed finance instruments (e.g., credit-guarantee schemes and targeted working-capital and equipment-upgrade loans in Indonesia and Mexico) ease collateral constraints and reduce the cost of capital, thereby enabling investment in productivity. Conversely, structural challenges including technology-skills gaps, fragmented supply chains, and macroeconomic volatility (notably in South Africa and segments of Latin America) slow innovation diffusion and dampen returns to productivity projects. The comparative synthesis suggests that policy alignment, KPI-based monitoring, and public–private coordination are necessary conditions for converting policy into verifiable productivity gains. Accordingly, we recommend integrated policy packages that combine technology upgrading, risk-aware financial facilitation, and managerial capability development, continuously calibrated to SME heterogeneity through ongoing evaluation.

Keywords: SMEs, Productivity, Emerging Economies, KPI-Based Monitoring, Public–Private Coordination

SUSTAINABLE LEACHING STRATEGIES FOR BEYLİKOVA RARE EARTH ORE: COMPARISON OF MINERAL ACIDS AND DEEP EUTECTIC SOLVENTS

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ABSTRACT

Introduction and Purpose: Rare earth elements (REEs) are critical for clean energy technologies, electronics, and advanced materials. The Eskişehir–Beylikova carbonatite complex, rich in bastnäsite, barite, and fluorite, represents Türkiye's largest and most promising REE resource, dominated by light rare earths such as La, Ce, Nd, and Pr. Conventional acid leaching methods achieve high recovery but generate significant acidic waste and rely on aggressive reagents. In contrast, deep eutectic solvents (DESs) have recently emerged as environmentally benign and tunable alternatives. This review compiles recent progress in green hydrometallurgical techniques, with particular emphasis on DES-based leaching systems for sustainable rare earth extraction**.**

Scope and Methodology: The study synthesizes international and national literature addressing DES formulations, thermodynamic mechanisms, and operational parameters affecting REE dissolution. Comparative assessments between mineral acid and DES leaching are presented to evaluate efficiency, selectivity, and environmental compatibility. Additionally, the Beylikova ore is introduced as a case study, highlighting its mineralogical composition and discussing potential beneficiation and extraction strategies suited for Türkiye's resource base.

Conclusions: Literature trends demonstrate that DESs can achieve comparable or higher REE recoveries under milder, greener conditions. This review underscores the importance of optimizing DES composition, reusability, and integration into scalable metallurgical flowsheets for sustainable rare-earth production.

Key Words: Rare Earth Elements; Beylikova Deposit; Deep Eutectic Solvents; Green Mineral Processing

SELECTIVE HYDROGENATION OF ACETYLENE HYDROCARBONS AND THEIR MIXTURES ON MULTICOMPONENT SKELETAL NICKEL CATALYSTS

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ABSTRACT

Introduction and Purpose: Selective hydrogenation is a crucial process in the petrochemical industry, particularly in the purification of valuable monomers used in polymer production. One of the main challenges in this process is the removal of trace amounts of phenylacetylene, which is often present as an impurity in styrene streams. Phenylacetylene must be selectively hydrogenated to styrene while preventing its complete saturation to ethylbenzene, which would lower the overall styrene yield and affect polymerization efficiency.
Materials and Methods: The hydrogenation reaction was conducted in a thermostated catalytic reactor at ambient pressure (1 atm) and a controlled temperature of 20 °C. Throughout the process, both the reaction kinetics measured via hydrogen uptake rate (cm^3/min) and the catalyst's electrochemical potential (mV vs. a saturated calomel reference electrode) were continuously monitored in accordance with established protocols.

Results: The activity of skeletal nickel catalysts varies widely depending on the nature of the modifying additives. The administration of Zn, Cu, Pb, Mo-Cu, Ta, Bi and Ag (W= 153-286 cm^3/min·g Ni) has a positive effect. The administration of Mn, Fe and Ti-Cu (W=56-75 cm^3/min·g Ni) has a negative effect.
Discussion and Conclusion: This study investigates the selective hydrogenation of acetylene hydrocarbons using multicomponent skeletal nickel (Ni) catalysts, with a focus on the influence of alloy composition on catalytic performance.
Key Words: hydrogenation, acetylene hydrocarbonsskeletal nickel catalysts

FINITE ELEMENT ANALYSIS OF RADIOFREQUENCY TUMOR ABLATION

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ABSTRACT

Radiofrequency ablation (RFA) is a minimally invasive procedure that uses electrical energy and heat to destroy cancer cells. RFA is usually considered a treatment option only if you're not a good candidate for surgery for some reason, such as your overall health or the presence of many small tumors in an organ. RFA is most commonly used to treat a spot of cancer that is causing problems such as pain or other discomfort and is generally not used as the primary treatment for most cancers. The radiologist uses imaging tests to guide a thin needle through the skin or an incision and into the cancer tissue. High-frequency energy passes through the needle and causes the surrounding tissue to heat up, killing the nearby cells. Computer modeling evolved into a very powerful tool for the determination of optimal conditions for RFA. We have developed a simulation package based on the finite element method to determine conditions enabling the efficiency of RFA. **Keywords:** radiofrequency ablation, necrotic tissue, three-dimensional simulation, finite element

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SHORT SHOOT GROWTH AND REPRODUCTION RESPONSE TO LIGHT CONDITIONS VARY WITH ORDER BRANCHING IN THE PROXIMAL PART OF *C. ATLANTICA* CROWN

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Abstract

Rapid regression of the geographic range of *Cedrus atlantica* (Endl.) G. Manetti ex Carrière) caused by global warming has placed the conifer on the red list as an endangered species. The study was conducted in the Central Middle Atlas in Morocco. We compared the effects of shading in individual branch orders 2 and 3 on the needle survival, growth, and reproduction of five categories of short shoots of the proximal part of wild Atlas cedar. The results show that the impact of shade exposure compared to sun on the loss of needles depends on the order of branching. The shadow only decreases significantly the production of pollen strobili of the branch order 2. Close relationships between short shoot extension, leaf life span, and pollen strobili production of axillary products in the proximal part of *C. atlantica* crown were found. Within the framework of strategies for the preservation of endangered species, these findings may attract the attention of foresters and researchers interested in forest trees.

Keywords: Atlas cedar; branch orders; growth; needle; pollen strobili.

COMPARATIVE ASSESSMENT OF THE NUTRITIONAL AND MEDICINAL POTENTIAL OF THE LEAVES OF MORINGA OLEIFERA, SENNA TORA, AND SENNA OCCIDENTALIS

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ABSTRACT

This study provides a comparative evaluation of the nutritional and medicinal potential of the leaves of Moringa oleifera, Senna tora, and Senna occidentalis. Detailed laboratory analyses were conducted to determine proximate composition, phytochemical profiles, and vitamin contents. Moringa oleifera leaves exhibited a significantly lower moisture content (7.5 ± 0.3%) and a higher crude protein level (27.3 ± 0.3%) compared to Senna tora (crude protein ;25.0 ± 0.1% moisture; 11.3 ± 0.3%) and Senna occidentalis (crude protein;18.0 ± 0.5% moisture; 12.2 ± 0.2%). Although the Senna species recorded higher crude fiber (7.3 ± 0.3% in Senna tora and 9.4 ± 0.4% in Senna occidentalis) and carbohydrate contents (46.1% and 53.7%, respectively), Moringa oleifera distinguished itself with an exceptional vitamin profile—Vitamin A at 18.9 mg/100 g compared to senna tora (10.4mg/100g) and senna occidentalis (9.8mg/100g), Vitamin C at 22mg/100g, while senna tora has 13.50mg/100g and senna occidentalis with 12.0mg/100g and Vitamin E at 16.5mg/100g compared to senna tora having 8.9mg/100g and senna occidentalis with 7.6mg. The mineral analysis showed that senna tora has higher calcium (46.1%) and potassium (13.79), while senna occidentalis contained more phosphorus (3.43%),magnessim (1.13%) and iron (1.36%). Zinc levels were similar in both species, and trace amounts of lead were detected only in senna tora. Phytochemical screening further revealed that Moringa oleifera is enriched in alkaloids, flavonoids, and phenols, which underpin its potent antioxidant and anti-inflammatory activities. In contrast, Senna tora and Senna occidentalis displayed higher levels of saponins and tannins, suggesting their utility as natural laxatives and antimicrobial agents. Collectively, these findings establish Moringa oleifera as a superior nutritional source, while highlighting the complementary therapeutic benefits of the Senna species. The integration of these plants into functional foods and herbal formulations holds significant promise for addressing malnutrition and enhancing healthcare in resource-limited settings.

Keywords: Moringa oleifera, Senna tora, Senna occidentalis, phytochemicals, nutrition, medicinal plants, antioxidants

COMPARATIVE ASSESSMENT OF DIFFERENT TYPES OF DEFOAMERS IN GROUP I–II-III BASE OILS

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ABSTRACT

Foaming is a persistent issue in lubricating oils that adversely affects air release, oxidation stability, and overall system reliability. Foam formation, characterized by the dispersion of air or gas bubbles within the oil matrix, poses significant operational challenges in industrial systems. Excessive foaming can lead to inaccurate level control in pumps, promote oxidative degradation of hydrocarbons, and compromise the long-term stability and performance of lubricants.

This study investigates the effect of various antifoaming agents on the foaming behaviour of mineral base oils representing Group I-II-III. A group of industrially relevant defoamers based on - a non-silicone polyacrylate, silicone compound, an organo-modified siloxane, and silicone-polyacrylate/polymer hybrids - were incorporated into selected base oils at 0.05 wt%. Foaming characteristics were evaluated according to ASTM D 892 (Sequences I–II-III) at initial, 15-day, and 30-day intervals to assess both immediate and time-dependent effectiveness.

Results revealed a strong correlation between antifoam performance, additive chemistry, and base-oil polarity. Compatibility between defoamer and base oil was governed primarily by the balance of surface activity and solubility. Silicone-based and hybrid defoamers exhibited fluctuations in foam suppression in the short and long term, while non-silicone polyacrylates showed long-term stability in Group I-II-III oils. The study provides novel insights into the long-term durability of antifoam additives, offering practical guidance for optimizing lubricant formulations and enhancing system reliability. Future work may include complementary tests such as air-release evaluation to provide a more comprehensive understanding of antifoam performance in lubricating oils.

Key Words: lubricating oils, foaming behaviour, antifoaming agents, ASTM D892

STUDY OF THE THERMOELECTRIC PERFORMANCE OF TWO-DIMENSIONAL JANUS MATERIALS

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Abstract

First-principles calculations based on density functional theory (DFT) were performed to investigate the electronic and thermoelectric properties of the 2H-phase molybdenum dichalcogenides MoQ_2 (Q = S and Se), as well as their hypothetical mixed-layer heterostructure. The difference in electronegativity between sulfur (S) and selenium (Se) atoms in MoQ_2 enables effective tuning of the electronic band structure when forming the mixed-layer $MoS_2/MoSe_2$ compound. It was observed that, while the pristine MoS_2 and $MoSe_2$ systems exhibit an indirect band gap, the mixed-layer $MoS_2/MoSe_2$ heterostructure shows a transition toward a pseudo-direct band gap, resembling the behavior found in monolayer MoQ_2 materials. This modification in the band character significantly influences the electronic transport characteristics. Furthermore, the interlayer mixing enhances the thermoelectric performance by increasing the density of electronic states near the Fermi level and reducing the band gap energy, which collectively favor higher carrier concentrations and improved power factors.Consequently, this study demonstrates that the layer-mixing strategy offers an effective approach to modulate the electronic band structure of transition metal dichalcogenides and to optimize their thermoelectric efficiency.

Keywords: MoS_2, $MoSe_2$, $MoS_2/MoSe_2$, Density functional theory(DFT) ,Electronic band gap, ,Thermoelectric properties.

THERMAL BUCKLING BEHAVIOR OF FUNCTIONALLY GRADED PLATES USING A HSDT THEORY

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Abstract

In this paper, a novel high shear deformation plate theory is presented for thermal buckling analysis of plates made of fonctionally graded material, an exceptional class of composites plates. This high shear deformation theory (HSDT) contains only four unknows. İt is assumed that the FG plate is resting on Winkiler-Pasternak foundation during the deformation, and their thermal and mechanical properties vary by distibution of power law across the thickness by satisfying the surface conditions. The elastic foundation is modelled by two-parameters Pasternak model, which is obtained by adding a shear layer to the Winkler model. Therfore, it is unnecessary to use a shear correction factor. The principle virtual works is used to extract equilibrium equations. The analytical solution is determined using the Navier method for simply supported rectangular plate on all edges. The precision of this theory is verified by comparing it with the various solutions available in the litterature.

Keywords: HSDT theory plate, Buckling Analysis, FG plates.

THE MITOGENOMICS OF *EUPHOLIDOPTERA SMYRNENSIS* (ORTHOPTERA, TETTIGONIIDAE): CONSERVED PATTERNS FOUND ACROSS THE PANCRUSTACEAN MITOGENOME

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ABSTRACT

Introduction and Purpose: Recent developments in sequencing technologies have revealed extensive genetic data widely obtainable, especially within biodiversity research. Many studies employing single-locus and/or multilocus approaches have emerged to barcode the diversity, and to examine evolutionary patterns within and among related lineages. In animals, mitochondrial genomes have been widely adopted because of their many advantages in tracking evolutionary history. In this study, the first complete mitogenome of the genus *Eupholidoptera* is obtained through shotgun next generation sequencing and comparatively evaluated against selected representatives of other Orthoptera and Hexapoda.

Materials and Methods: Total genomic DNA was extracted from the muscle-rich leg tissue of a single specimen using the PureLink Genomic DNA Isolation Kit (Thermo Fisher Scientific, USA). DNA concentration and quality were assessed with a Qubit Fluorometer 4.0 (Thermo Fisher Scientific, USA). The assembly and annotation of the mitochondrial genome were performed using algorithms implemented on the Galaxy Europe platform. Gene positions (strand orientation and order), overlapping regions, intergenic spacers, start and stop codons of protein-coding genes (PCGs), and tRNA anticodons were identified using GENEIOUS v9.0.5. Gene matrices were subsequently imported into MEGA v7.0 for nucleotide composition, amino acid composition and relative synonymous codon usage analyses. The obtained results were compared with the ancestral mitogenomes reported in the literature.

Results: The complete mitogenome of *E. smyrnensis* was 16,107 bp and contained 13 PCGs, 22 tRNAs, 2 rRNAs, and a D-loop region. Gene arrangement and strand orientation were matching with the ancestral pancrustacean pattern. Most PCGs started with ATN codons (ATG, ATT, ATA) and ended with complete or incomplete stop codons (TAA, TAG, TA–, or T—). The overall nucleotide composition was strongly AT biased, amino acid compositions and relative synonymous codon usage were consistent with previous Orthoptera mitogenomes. **Discussion and Conclusion:** The *E. smyrnensis* mitogenome exhibited conserved structure, composition, and codon-usage patterns typical for Orthoptera and the ancestral pancrustacean mitogenome. The findings may provide a useful reference for future studies within *Eupholidoptera*, Tettigoniidae and Orthopteran taxa.

Key Words: Characterisation; *Eupholidoptera*; Mitogenome; Next-generation sequencing; Orthoptera

AN EXAMINATION OF GRADUATE THESES ON PLAY THERAPY IN TURKEY

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ABSTRACT

Introduction and Purpose: Play therapy is one of the most effective methods through which children can express the problems they encounter, as well as their emotions and thoughts. It is also used as an effective technique in treating children's behaviors. Although studies in this field have increased in recent years, it still remains a limited area, particularly in the educational context. The study is considered important in that it examines existing research on play therapy through a literature review with a holistic perspective, revealing the fields and contexts in which studies are conducted, their place in the literature, and general research trends in Turkey. In this context, the purpose of this research is to examine master's and doctoral theses on play therapy conducted in Turkey between 2013-2024, which are available in the Council of Higher Education (YÖK) Thesis Center.

Materials and Methods: The research was designed with a qualitative approach, and the document analysis method was used. In the study, publications with the keyword "play therapy" registered in the YÖK Thesis database between 2013-2024 were evaluated in the context of various criteria. In this context, the type of theses, disciplines, research methods, participant age ranges, institutes, universities, and types of play therapy used were included in the research. The findings obtained from the analysis were presented in tables.

Discussion and Conclusion: The findings demonstrate that play therapy yields positive results. It is noteworthy that the first thesis study on play therapy in Turkey was conducted in 2013. It was determined that these studies are concentrated in the field of psychology, this topic is given less attention in doctoral theses, quantitative studies are more prevalent, and more studies are conducted with the 6-15 age range. Most studies were carried out within social sciences institutes and at private universities. It was found that Üsküdar University has a significantly higher number of theses in this field compared to other universities, and all theses in 2017 were conducted at this university. The most frequently preferred method in the studies is child-centered play therapy. These findings emphasize the need for more comprehensive and diversified research in the field of play therapy.

Keywords: Play therapy, Graduate Thesis, Turkey, Document Analysis

USER ACCESSIBILITY IN SHOPPING MALLS: TOWARDS COMPLIANCE AND INCLUSIVE DESIGN

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Abstract

Accessibility within shopping malls is a critical component of inclusive architectural design that ensures equitable use of spaces by all individuals, including persons with disabilities (PWDs). Despite the existence of national and international accessibility frameworks, such as Nigeria's Persons with Disabilities (Accessibility) Regulations 2023 and the United Nations Sustainable Development Goals, many commercial facilities in developing countries remain inadequately designed for universal access. This study examined the extent of user accessibility in selected shopping malls across Nigeria, identifying compliance gaps with established accessibility standards. A quantitative research approach was adopted, employing an observational checklist and structured questionnaire administered across fifteen malls in different regions. The collected data were analysed using descriptive and comparative statistical techniques. Findings revealed that while most malls provide basic access routes and entry points, significant deficiencies persist in key accessibility features such as ramps with handrails, tactile and braille signage, accessible restrooms, and auditory/visual information systems. In particular, inconsistencies in spatial circulation, emergency egress, and auxiliary amenities reflect widespread non-compliance with the Persons with Disabilities (Accessibility) Regulations 2023. The study concludes that some Nigerian shopping malls generally lack comprehensive accessibility planning, posing challenges to comfort, independence, and safety for users with disabilities. It recommends stricter enforcement of accessibility regulations, heightened stakeholder awareness, and the integration of accessible design principles into architectural practice. These measures are essential to fostering inclusive public environments and advancing Nigeria's progress toward the United Nations' 2030 Agenda for Sustainable Development.

Keywords: Accessibility, Shopping Malls, Persons with Disabilities, Accessible Design, Built Environment, Nigeria.

PRIMARY SCHOOL STUDENTS' VIEWS ON PHYSICAL ACTIVITIES AND GAMES VERSUS DIGITAL GAMES

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ABSTRACT

Introduction and Purpose: The aim of this study is to determine the views of primary school students regarding physical activities and games versus digital games. The study analyses students' perceptions of both types of games, the reasons behind their game preferences, their frequency of playing games, the meanings they attach to games, and their views on the effects of these games on their social, cognitive, and physical development.

Materials and Methods: This study, designed as qualitative research, utilised a semi-structured interview form as the data collection tool. The study was conducted with fourth-grade students attending a state primary school in the central district of Bolu province. Thirty pupils from the fourth grade of a randomly selected primary school volunteered to participate, forming the study group. The data were evaluated using content analysis techniques.

Results: According to the findings of the study, the vast majority of elementary school students prefer physical games, with socialization, enjoyment, and health being the main reasons for this preference. It was found that students generally prefer digital games for short-term entertainment, gathering information related to their studies, and having a good time, but when playing continuously, they also experience negative effects such as loneliness, constant boredom, and addiction. It has also been determined that families pay attention to the amount of time their children spend playing digital games and impose restrictions based on the content of the games, while showing a supportive attitude by preferring physical games.

Discussion and Conclusion: The study found that primary school students prefer physical activities and games over digital games for reasons such as having fun, socializing, and staying healthy. Students mentioned several positive aspects of digital games, but this situation eventually leads them to loneliness, boredom, and addiction. Therefore, parents and educators are expected to strike a balance in this situation and adopt a controlled approach. Future studies should involve families and focus on the educational aspects of these types of games.

Key Words: Digital games, Physical games, Primary school students.

INVESTIGATION OF THE EFFECTS OF DIFFERENT PLASTICIZERS ON THE PROPERTIES OF PVA-BASED PACKAGING FILMS

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ABSTRACT

Introduction and Purpose: The packaging industry today faces the need to develop innovative solutions that can meet consumers' expectations focused on health, the environment, and sustainability. The increasing demand for environmentally conscious, innovative, and sustainable products has brought the use of biodegradable polymers to the forefront. In this context, polyvinyl alcohol (PVA) stands out among sustainable packaging materials due to its water solubility, excellent film-forming ability, high oxygen barrier property and biodegradable nature. However, the melting temperature of PVA without plasticizers is very close to its decomposition temperature. To enhance the processability of PVA, modification with suitable plasticizers such as polyethylene glycol (PEG), glycerol, or lactic acid is of great importance for optimizing its melting behavior, fluidity, and thermal stability. This study aims to comparatively investigate the effects of different plasticizers (lactic acid and PEG) on the properties of PVA, a biodegradable and water-soluble polymer.

Materials and Methods: Film samples were prepared by the solution casting method by adding PEG at 10%, 20% and 30% by weight and LA at 0.5%, 1%, 2% and 4% by weight into the PVA matrix. The produced films were evaluated in terms of mechanical strength using tensile test, water resistance with dissolution time test, and thermal properties using differential scanning calorimetry (DSC). The obtained films were characterized in detail in terms of fundamental properties such as tensile strength and elongation at break.

Results: In lactic acid–added samples, those containing 0.5% and 1% LA showed an increase in tensile strength, while the elongation at break reached its highest value in the sample containing 4% LA. In PEG-added samples, particularly the 10% PEG film, showed a significant increase in tensile strength and elongation at break increased with higher PEG content, reaching the highest value at 30% PEG. Although both plasticizers improved the processability and mechanical properties of PVA, the PEG-added films exhibited a more balanced and higher performance in terms of both tensile strength and elongation at break.

Key Words: Polyvinyl alcohol (PVA), plasticizer, polyethylene glycol (PEG), lactic acid (LA)

EFFECTS OF THE LABORATORY REPORT BASED ON SCIENCE WRITING HEURISTIC APPROACH ON THE SCIENCE PROCESS SKILLS AND QUESTIONING SKILLS

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ABSTRACT

Introduction and Purpose: The aim of this study is to analyze the effect of laboratory report based on Science Writing Heuristic (SWH) approach on the scientific process skills and questioning skills of prospective science teachers. The study was carried out in the spring semester with the second year students of the Faculty of Education Science teaching Program of a public university in the Central Anatolia region.

Materials and Methods: Within the scope of the General Biology Laboratory 2 course, a quasi-experimental model was adopted in the study which was conducted over a period of ten weeks. The research was conducted with a quasi-experimental model with a pre-test and post-test control group. The participants of this study were comprised of 41 prospective science teachers study at Yozgat Bozok University. The data of the research were collected using Scientific Process Skills Test (SPST) and Questioning Skills Scale (QSS), Process Skills Test and Questioning Skills Scale were analyzed by using independent + test in SPSS 24 program.

Results: It was found that laboratory report based on SWH approachdid not have a statistically significant effect on prospective teachers scientific process skills and questioning skills. In the light of the results of the study, suggestions were presented.

Key Words: Science Writing Heuristic, Scientific Process Skills, Questioning Skills, Written Argument Quality

THE REFUGEE MOVEMENT (1862 – 1874) IN VIETNAM AND PROMINENT FIGURES OF THE MOVEMENT

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Abstract

Since the French attacked and occupied Southern Vietnam (1859), a strong patriotic movement against the French colonialists erupted throughout the latter half of the 19th century, including the refugee movement (1862 – 1874). The "refugee" movement was a unique phenomenon during this historical period; it was a spontaneous movement without a leader, yet it had a significant influence on the social context of Southern Vietnam at that time. Essentially, the main activity of this movement was a wave of people leaving their homes, lands, and ancestral villages to relocate elsewhere. They refused to live alongside the French invaders occupying their homeland.

The refugee movement from 1862 to 1874 in Vietnam attracted a considerable number of scholars, intellectuals, and officials, including Nguyen Dinh Chieu, a world cultural figure; Phan Van Tri; and Nguyen Thong, among others. These individuals greatly influenced the movement by promoting patriotism and the spirit of resistance and non-cooperation with the invading enemy. Within the scope of this article, we will outline the formation of the movement, its key phases, and introduce some prominent figures who significantly contributed to its influence.

Keywords: refugee movement, concept, formation, phases, prominent figures.

THE PREPONDERANCE OF PROBABILITY APPROACH TO PROVING CAUSATION

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ABSTRACT

Causation is deemed to exist when the damage would not have occurred in the absence of the harmful factor. The injured party bears the burden of proving causation. As a result, the inability to prove causation places the consequences on the victim. In other words, the injured person bears the disadvantage arising from evidentiary difficulties caused by causal uncertainty. In complex, multifactorial, and technically uncertain situations—such as those involving toxic substances, cancer, or medical liability—proving causation to the standard of full proof is difficult and, in some cases, practically impossible. Although the factors that could have caused the harmful outcome are known, it is not always possible—and only rarely so—to determine precisely which one actually caused it. In such circumstances, the Swiss Federal Supreme Court applies the standard of "überwiegende Wahrscheinlichkeit" (preponderant probability or predominant likelihood) to ease the burden of proof (BGE 132 III 715, E. 3.1). Under this approach, the injured party may establish causation with a higher degree of probability than ordinary probability, without the need for scientific certainty. Under the preponderant probability standard, there must be such strong and objective reasons supporting the truth of a claim that other conceivable possibilities can reasonably be disregarded as insignificant (BGE 130 III 321, E. 3.3). In other words, if the judge is convinced that one possibility is stronger than the alternatives, causation is deemed to be established. This standard represents a lower degree of conviction than full proof (Vollbeweis), but a higher degree than mere possibility. The preponderant probability approach is similar to the "balance of probabilities" standard in English law. However, while the "balance of probabilities" standard considers a "50% + 1" likelihood sufficient, the Swiss Federal Supreme Court requires a stronger level of conviction—a dominant probability that persuades the judge—not merely based on a statistical threshold but on a rational conviction supported by life experience. In Turkish law, particularly in complex, multifactorial cases involving medical or technical uncertainty—such as toxic product liability, medical malpractice, occupational accidents, or social insurance disputes—requiring full proof may make it practically impossible for the victim to obtain justice. Therefore, adopting the preponderant probability standard instead of full proof would be more appropriate.

Keywords: Damages, Causation, Proof, Ease of Proof, Preponderant Probability.

A NEW METAHEURISTIC METHOD FOR ASSESSING UNIQUENESS IN NFT TECHNOLOGY

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ABSTRACT

In recent years, the rise of blockchain technology has allowed artists and collectors to genuinely own their digital creations. Through Non-Fungible Tokens (NFTs), digital works can be treated as unique assets that hold real value. Still, it is quite common to find repeated or slightly altered images in various NFT collections, which harms their originality and lowers their market value. This study addresses that issue by presenting a metaheuristic method that examines image structures to estimate visual similarity and identify possible copies or fake NFT assets.

The model was developed and tested using an open dataset containing 900 NFT images. These images were organized into 90 collections, each including 10 visually related samples. From each collection, five images were used for training, and the remaining ones were used for testing. The proposed approach relies on the Structural Similarity Index Measure (SSIM), which evaluates the structure of images to determine how closely they resemble each other. Based on the SSIM results among all items, a relative evaluation matrix was created and used to build the final model. To measure the uniqueness of each asset, a 450×450 similarity matrix was produced, offering a clear and detailed overview of the model's performance.

The experimental findings show that the proposed approach can successfully identify re-created NFT assets without causing a noticeable increase in computation time. Since the method performs relative comparisons, it also makes it possible to rank each collection based on its overall uniqueness. This evaluation process helps build a practical way to estimate the monetary value of NFTs. In addition, the approach lays the groundwork for a decision-support system that can be used to evaluate NFT assets more effectively in digital marketplaces.

Key Words: NFT, Uniqueness Detection, SSIM, Visual Similarity

INTERACTION BETWEEN BODY MASS INDEX, SELF-PERCEPTION, AND EATING BEHAVIORS: THE PSYCHOSOCIAL IMPACT ON OBESITY RISK AMONG YOUNG ADULTS

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Abstract

The relationship between body weight perception and eating behavior represents an important psychosocial determinant of obesity risk among young adults. This study explores the interaction between measured Body Mass Index (BMI), self-perceived weight status, and eating habits among first-year university students in Albania. A cross-sectional survey was conducted among 322 students aged 18–23 at the Agricultural University of Tirana. Anthropometric data were collected, and a structured questionnaire assessed food choices, frequency of Ultra-Processed Food (UPF) consumption, and self-perception of body weight. The mean BMI was 22.5 ± 4.2, with notable behavioral differences. More than half of the participants accurately perceived their body weight, while misperception was more frequent among underweight and overweight individuals. Skipping breakfast and frequent consumption of ready-to-eat or processed foods were more common among students with overweight or obesity, suggesting behavioral differences related to body weight. Time constraints and social influences, reported by 63.9% and 2.6% of students respectively, emerged as key psychosocial barriers to healthy eating. These findings highlight the complex interaction between body image, eating behavior, and weight status, suggesting that body weight misperception may contribute to unhealthy dietary practices and elevated obesity risk. Integrating nutritional literacy and mental health support within university settings may help address both the behavioral and psychological dimensions of obesity prevention.

Keywords: BMI, body image, eating behavior, psychosocial factors, obesity, university students

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This review demonstrates that lifestyle-linked nutrition interventions, including mental-health support, are of significant preventive potential in reducing both psychological disorders and weight-related problems.

APELIN AND MALE REPRODUCTIVE PHYSIOLOGY RESEARCH IN VETERINARY SCIENCES: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

Introduction and Purpose: Apelin, an endogenous peptide with multifaceted physiological functions, has recently gained increasing attention in reproductive biology. Within male reproduction, apelin and its receptor (APJ) are believed to regulate testicular activity, spermatogenesis, oxidative balance, and hormonal interactions. The present study aimed to perform a bibliometric analysis to explore global research trends, influential contributors, and thematic structures related to apelin and male reproductive physiology in the field of veterinary science.

Materials and Methods: Relevant data were retrieved from the Scopus database covering the period between 2015 and 2025 using the keywords "apelin," "reproduction," and "male." Bibliometric and network analyses were carried out using RStudio (Biblioshiny package) and VOSviewer software. Collected data were evaluated in terms of annual publication trends, authorship, countries, journals, and keyword co-occurrence to determine the main research foci and collaboration networks.

Results: A total of 143 publications were identified. China, Italy, and Poland were the most productive countries, while Wang and Rak were the leading authors in this area. *Theriogenology* and *Reproductive Biology* were identified as the most influential journals. Keyword co-occurrence analysis revealed "apelin," "testis," "oxidative stress," and "spermatogenesis" as core research themes, highlighting the molecular and cellular mechanisms underlying male reproductive function. **Discussion and Conclusion:** The results indicate a gradual increase in apelin-related studies within male reproductive physiology over the past decade. These findings emphasize apelin's potential regulatory role in testicular and endocrine function. This bibliometric analysis provides an updated overview of the field and outlines future directions for research in veterinary and comparative reproductive physiology.

Key Words: Apelin; Male Reproduction; Bibliometric Analysis; Veterinary Science; Oxidative Stress

DO DIGITAL DISCLOSURE AND CASH HOLDING INFLUENCE EARNINGS MANAGEMENT? EVIDENCE FROM INDONESIA'S STATE-OWNED ENTERPRISES

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Abstract

This study investigates the effect of corporate website disclosure level and cash holding on earnings management in state-owned enterprises (SOEs) in Indonesia for the 2020–2024 period. The study is motivated by the increasing importance of digital transparency in promoting accountability and the strategic role of cash management in influencing corporate reporting behavior. In an era where state-owned enterprises are expected to demonstrate both profitability and transparency, understanding the determinants of earnings management becomes crucial. This research adopts a quantitative approach using secondary data derived from the annual reports and official corporate websites of SOEs listed on the Indonesia Stock Exchange (IDX). The level of corporate website disclosure was measured using a disclosure index based on prior literature, while cash holding was represented by the ratio of cash and cash equivalents to total assets. Earnings management was measured using the modified Jones model as a proxy for discretionary accruals. The collected data were analyzed using multiple linear regression with SPSS version 22 to test the influence of the independent variables on earnings management. The results reveal that cash holding has a significant negative effect on earnings management, indicating that firms with higher cash reserves tend to exhibit lower levels of earnings manipulation. This finding suggests that adequate liquidity enhances financial stability and reduces management's incentive to distort reported earnings, as companies with stronger cash positions are less pressured to engage in opportunistic accounting practices to meet short-term targets. Conversely, the level of corporate website disclosure does not significantly affect earnings management, implying that online transparency alone may not be sufficient to curb manipulative financial reporting behaviors without the support of effective governance mechanisms. The study contributes to the existing literature by integrating digital transparency and liquidity perspectives in explaining earnings management within Indonesian SOEs. These findings have practical implications for regulators and policymakers, emphasizing the importance of strengthening internal control systems and liquidity governance to enhance the credibility and integrity of financial reporting in the public sector.

Keywords: cash holding, website disclosure, earnings management, transparency, state-owned enterprises

REMOTE SENSING-BASED ASSESSMENT OF URBANIZATION IMPACTS ON URBAN INTERCEPTION AND RUNOFF DYNAMICS IN CHATTOGRAM UNDER CLIMATE CHANGE

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Abstract

Rapid urbanization, coupled with changing climatic conditions, has significantly altered hydrological processes in coastal cities of Bangladesh. This study investigates the impact of urban expansion on urban rainfall interception and runoff dynamics in Chattogram, Bangladesh, using multi-temporal remote sensing data and climate variables. Landsat imagery from 1990 to 2025 was analyzed to quantify land use and land cover (LULC) changes, while the Normalized Difference Built-up Index (NDBI), Normalized Difference Vegetation Index (NDVI), and impervious surface mapping were employed to assess urban growth patterns. Rainfall and temperature data were incorporated to analyze climate variability and its influence on hydrological responses. Results revealed increase in impervious surface area, primarily replacing vegetated and agricultural lands, which has substantially reduced canopy interception and infiltration capacity. Consequently, runoff potential increased by approximately. intensifying flood susceptibility in urban catchments. The study highlights the urgent need for integrating sustainable urban planning, green infrastructure, and climate-resilient drainage systems in Chattogram to mitigate the hydrological consequences of unplanned urbanization under a changing climate.

Keywords: Urbanization, Remote sensing, Urban interception, Runoff dynamics, Climate change, Chattogram

FEATURES OF MASCARA SOIL FOR BARRIER CONFINEMENT

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Abstract

The present work concerns a valorization study on the natural dredged sediments of the Bouhanifia dam (western Algeria) from the settling ponds during their storage combined with bentonite to improve their physical and mechanical characteristics for constructing soil liners used in landfill sites. Firstly, we conducted a geotechnical characterization of the mixtures selected from different percentages of bentonite (2, 4, 6, 8 and 10%). This study's preliminary tests were carried out on samples compacted under Modified Optimum Proctor (OPM) conditions, underwater effects to meet the engineered barriers' direct shear and Atterberg limits. Secondly, the results show that the compaction characteristics were affected by the addition of bentonite, Atterberg limits increased, the friction angle and cohesion increased with treatment. Finally, the characterization of the mixture adopted, based on physical and mechanical parameters, shows that the material meets the requirements of the regulations for a landfill of hazardous waste. It should also obviously lead to a modelization of the engineered barrier to validate these local materials' performance in environmental applications.

Keywords: Soil, Valorization, engineered barriers, Bentonite

THE ANTIOXIDANT AND ANTIMICROBIAL ACTIVITY OF *USNEA BARBATA* L. FROM MOUNT KOPAONIK IN SERBIA

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Abstract

Usnea barbata L. is a lichen species that has been utilized for therapeutic purposes since ancient times. Their chemical composition strongly depends on growth conditions. The aim of this work was to investigate the total phenolic and flavonoid content, as well as the antioxidant and antimicrobial activities of the ethyl acetate extract (EtAcOH) of *U. barbata* L. thallus *in vitro*. The thallus was taken from Mount Kopaonik, Serbia, in 2022. They were transported to the laboratory, washed with distilled water, dried in the dark, ground, and extracted in ethyl acetate. Extraction was performed three times every 24 h; the solution was filtered through filter paper and evaporated in a Soxhlet apparatus to dryness. Antioxidant activity was determined by measuring: total antioxidant activity, DPPH free radical scavenging capacity, and Fe^{2+} chelating capacity. The extracts' antimicrobial activity was tested on the following fungal species: *Alternaria alternata*, *Aspergillus flavus*, *Aspergillus niger*, *Penicillium italicum*, *Trichoderma viride*, and two species of Gram(+) bacteria: *Bacillus subtilis,* and *Staphylococcus aureus.* The current results confirmed that the crude EtAcOH extract contained a total phenols and flavonoids content of 188.80 mg GA/g dry extract and 65.05 mg QU/g dry extract, respectively. The total antioxidant activity was 2.501 μgAA/ml. The extract was able to neutralize 57.61% of the DPPH free radicals and had a 24.85% capacity for chelating (binding) metal ions at a concentration of 250 μg/ml. The minimum inhibitory concentration (MIC) of EtAcOH extract for suppressing the growth of *A. niger, A. flavus, P. italicum* and *T. viride* was 1 mg/ml, while a MIC of 0.5 mg/ml inhibited the growth of *B. subtilis*. The extract had the strongest inhibitory impact on *A. alternata* and *S. aureus* (MIC=0.25 mg/ml). Further research should be directed towards determining the chemical composition of this lichen and isolating potentially new natural antimicrobial products.

Keywords: *Usnea barbata* L., total phenolic content, total flavonoid content, antioxidant activity, antimicrobial activity

THE SATIFACTION OF FOREIGN GUESTS WITH THE TOURIST OFFER OF THE CITY OF GOSPIĆ

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Abstract

Tourism is an important factor in economic development and is a generator of employment in Croatia. Within the framework of the development of increasingly popular continental tourism, it can represent an additional wheel of development for cities that are striving to develop a recognizable tourist identity. The city of Gospić, located in the center of Lika, has been increasingly investing in the development of a tourist offer based on natural beauty, cultural and historical heritage and active recreation in recent years. Gospić has numerous natural and cultural and historical resources that can contribute to the development of tourism throughout the year. Nearby are the national parks of Plitvice Lakes, Northern Velebit and Paklenica, while the city itself offers historical sights, museums and events that represent the identity of Lika. Since the number of foreign guests in Gospić is increasing every year, understanding their needs and expectations is key to the long-term development of continental tourism and strengthening the position of Gospić as a recognizable tourist destination in central Croatia. The aim of this research was to analyze the level of the satisfaction of foreign guests with the current tourist offer of the city of Gospić and to determine which elements of the offer have the greatest impact on the overall satisfaction of tourists. The research was conducted using a questionnaire among foreign visitors who stayed in Gospić during the 2025 tourist season. The questionnaire contained questions about the country of origin, length of stay, purpose of visit and evaluation of various aspects of the tourist offer, such as accommodation, gastronomic offer, cultural and natural attractions, transport connections and friendliness of the local population. The collected data were statistically processed and analyzed, and the results showed that foreign tourists were generally satisfied with their stay in Gospić, with the friendliness of the local population and the quality of accommodation being rated the highest, while cultural and entertainment activities received lower ratings. Most respondents stated that they would visit Gospić again and recommend it to others. The results obtained can serve the Tourist Board of the City of Gospić and local stakeholders as guidelines for improving the offer, especially in the segments of cultural events, which would contribute to increasing competitiveness and sustainable development of tourism in Lika.

Keywords: tourists' satisfaction, continental tourism, statistic analysis, questionnaire.

ART INCLUSION METHODOLOGY

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Abstract

This article presents the "Art Inclusion" methodology, an educational approach that transforms graphic-pictorial activity from a secondary role into a strategic and fundamental tool for children's cognitive, affective, and social development. The primary objective is not art education, but rather the use of the creative process as an effective means for learning and inclusion. This methodology is grounded in solid theoretical principles: Vygotsky's Socio-Cultural Constructivism, featuring the concepts of Scaffolding and ZPD, Dewey's Art as Experience, which emphasizes the process rather than the product, and Munari's "Learning by Doing" principle, which encourages plurisensorial experimentation. These foundations translate into practical principles that guide the teacher: molar activity as defined by Bronfenbrenner, the creation of a safe and non-judgmental laboratory, the teacher's role as a mediator, the plurisensorial exploration of materials, and empathic listening through narration. Practical application occurs through a structured model, such as the Graphic Circle Time, with progressive tasks. This methodology proves to be a powerful tool for promoting authentic learning accessible to all, based on relationships and meaningful experiences.

Keywords: Art Inclusion, School Inclusion, Creative Learning, Socio-Cultural Constructivism, Scaffolding, Molar Activity, Artistic Experience, Active Pedagogy.

EXAMINING SOCIOECONOMIC AND FARM-SPECIFIC FACTORS INFLUENCING THE ADOPTION OF ARTIFICIAL INSEMINATION TECHNOLOGY IN DAIRY FARMING: A CASE STUDY FROM BRAHMANBARIA DISTRICT, BANGLADESH

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Abstract

The dairy sector of Bangladesh is a vital contributor to food security, rural employment, and GDP, yet smallholder farmers continue to rely on traditional practices that limit productivity. Despite governmental and institutional efforts to promote modern technologies such as artificial insemination (AI), adoption rates remain low. This study addresses the existing gap in empirical research on the determinants of AI technology adoption in Bancharampur Upazila of Brahmanbaria district, where no prior study has comprehensively examined socioeconomic, institutional, and technical factors influencing farmers' adoption decisions. The primary aim is to identify the key drivers and barriers affecting farmers' willingness to adopt AI technology and to propose policy directions for sustainable dairy development. Using a cross-sectional survey design, data were collected from 80 dairy farmers (40 adopters and 40 non-adopters) through structured interviews in three purposively selected villages. The data were analyzed using descriptive statistics and a binary logistic regression model to estimate the probability of AI adoption in relation to demographic, economic, and institutional variables. The results revealed that education, landholding size, main occupation in dairy farming, and access to extension services significantly and positively influenced adoption decisions, whereas larger family size was negatively associated with adoption. Major constraints included inadequate knowledge of AI services, lack of skilled technicians, high input costs, distant veterinary facilities, and insufficient access to credit and cooperative support. The study implies that strengthening extension services, expanding farmer education and training programs, improving access to affordable veterinary care, and supporting women's participation are critical for enhancing technology uptake. Policymakers should also focus on financial inclusion and cooperative development to promote sustainable dairy intensification. Overall, the study's findings can serve as a framework for policymakers and researchers to develop strategies to bridge the gap in dairy technology adoption.

Keywords: Artificial Insemination, Dairy Farming, Binary Logistic Regression, Technology Adoption, Socioeconomic

ARTIFICIAL INTELLIGENCE INTEGRATING REGENERATION: THE FUTURE OF PERSONALIZED TISSUE ENGINEERING

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ABSTRACT

Regenerative medicine is a rapidly developing area that uses innovative techniques including stem cell-based medicines, gene therapy, and tissue engineering to replace, repair, or regenerate damaged or unhealthy tissues and organs. Tissue Engineering (TE) and scaffold-based regenerative medicine have experienced a significant transformation with the incorporation of artificial intelligence (AI) technology. This paper presents a thorough examination of recent advancements in AI-enhanced tissue engineering, emphasizing the significance of AI in biomaterial selection, scaffold optimization, patient-specific regenerative therapies, and large-scale tissue engineering manufacturing. This article analyses how AI, encompassing machine learning and data fusion methodologies, can enhance regenerative medicine, namely in gene therapy, stem cell therapy, and tissue engineering. In gene therapy, AI techniques enhance the precision and safety of therapies by scrutinizing vast genomic databases to accurately target and change genetic material. In cell treatment, artificial intelligence enhances the characterisation and optimization of cell products, such as mesenchymal stem cells (MSCs), by forecasting their functionality and efficacy. Artificial intelligence improves tissue engineering by refining biomaterial and scaffold designs, forecasting tissue interactions, and expediting development processes. The integration of AI with regenerative medicine possesses significant transformational potential, offering effective treatments and novel therapeutic techniques. This study emphasizes the significance of interdisciplinary collaboration and the ongoing incorporation of AI-driven technologies, including data fusion techniques, to address existing obstacles and progress in regenerative medicine.

Keywords: Tissue engineering; artificial intelligence; scaffold; MSCs; regenerative medicines.

ARTIFICIAL INTELLIGENCE-BASED CLASSIFICATION AND DETECTION OF LIQUID OIL USABILITY USING GAS SENSOR DATA

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ABSTRACT

Fried foods are widely consumed due to their appealing sensory properties and compatibility with fast consumption habits. However, prolonged exposure of oils to high frying temperatures leads to the formation of harmful compounds, including trans fats, aldehydes, and oxidation products, which are associated with chronic diseases such as cardiovascular disorders, diabetes, and certain cancers. Ensuring the safety and quality of edible oils is therefore a critical public health priority. Traditionally, laboratory-based analytical methods such as free fatty acid (FFA) analysis and total polar substance (TPS) measurements have been used to assess frying oil quality. While reliable, these methods are costly, time-consuming, and impractical for real-time, on-site monitoring in industrial settings. In this study, an innovative approach was developed to assess frying oil quality by integrating BME688 gas sensor matrix data with artificial neural network (ANN) modeling. Sensor responses were recorded during multiple frying cycles and correlated with TPS and FFA values, allowing the sensor data to be meaningfully interpreted and mapped to oil degradation levels. The optimized ANN model achieved high classification accuracy, enabling rapid and precise differentiation between fresh and degraded oils. This digital, sensor-based method provides a faster, portable, and lower-cost alternative to conventional analytical techniques. It enables real-time monitoring of oil quality, reduces dependency on complex laboratory procedures, and supports safer frying practices in the food industry. Overall, this work bridges the gap between traditional quality control methods and modern technological solutions, highlighting the role of digitalization in strengthening food safety and protecting public health.

Key Words: Machine Learning, Artificial Neural Network, BME688 Gas Sensor, Frying Oil Quality, Sensor Monitoring, Oil Reuseability

LUMINESCENCE AND STRUCTURAL STUDIES OF NOVEL DY^{3}+ DOPED TELLUROBOROFLUORATE GLASSES

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Abstract

Novel telluroborofluorate glass doped with trivalent dysprosium ion were synthesised with different concentration via conventional melt quenching technique to investigate the structural and optical properties. The structural studies of the glass network were performed using XRD and FTIR spectrum, which confirmed the amorphous nature and identifies the functional groups present in the host matrix. The optical spectra were analysed to determine the electronic transitions and the nature of the bonding with in the matrix. The Photoluminescence studies demonstrated dominant emission corresponding to the 574nm ($^{4}F_{9/2} \rightarrow {}^{6}H_{13/2}$, with an excitation of 387nm ($^{6}H_{15/2} \rightarrow {}^{4}I_{13/2}$.) and can be excited using near UV radiations. The CIE color coordinates where analysed with the coordinates (0.3504,0.3962) and it shows a white light emission with color purity of 24.1%. The obtained results suggest that these novel Dy^{3+}-doped telluroborofluorate glasses, has superior optical performance, are promising candidates for advanced lighting and w-LED applications.

ASSA ABLOY DOOR LOCK AND KNX SYSTEM INTEGRATION

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ABSTRACT

Introduction: In modern hotels, the integration of security systems, access control, and energy efficiency has become an essential requirement. Current systems manage these processes separately, which leads to operational challenges and high costs. The system proposed in this study allows personnel management and energy-saving functionalities to be handled through a single platform. This system will significantly reduce operational costs while enhancing guest safety and comfort. One of the key reasons for preferring this system over others is its scalable and customizable architecture, which allows seamless integration into different hotel types. Furthermore, being based on domestic technology, it reduces dependency on foreign solutions.

Objective and Development: The primary objective of this study is to develop a system capable of detecting real-time guest room entries and exits, which will in turn automatically trigger climate control, lighting, and energy consumption scenarios. Additionally, services such as housekeeping, maintenance, or minibar requests will be managed through a centralized system. Thanks to the integrated module enabling data conversion between KNX and Zigbee protocols, interoperability between two distinct infrastructures will be ensured. This integration will improve user experience and enhance energy efficiency.

Method and Implementation: During the development process, remote updating of the Zigbee processor software will be enabled, followed by the implementation of both online and offline door lock modes over this network. Based on data received from the doors, hotel logic will be designed on the KMG platform. Through the integration of the door lock system, scenarios will be created to differentiate between guest and staff activities, allowing service requests to be accurately detected and processed.

Findings and Expected Contribution: This system will offer a flexible communication platform that supports both online and offline room status management. While enabling significant energy savings, the developed solution will also help prevent unauthorized room sales.

Keywords: Hotel automation, KNX integration, Zigbee protocol, energy efficiency, access control, guest room management

ASSESSING THE IMPACTS OF CLIMATE CHANGE ON RICE PRODUCTION AND FARMER ADAPTATION STRATEGIES IN BANGLADESH

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Abstract

This study investigates how climate change affects rice production in Bangladesh, focussing on five representative agro-ecological zones (Dinajpur, Rajshahi, Brahmanbaria, Barguna, and Bagerhat). Data from farmers throughout these zones were gathered using a survey-based methodology and analysed using regression models to understand how temperature and rainfall fluctuations affect rice yield. The study finds that rising temperatures have a considerable negative influence on yield, although higher rainfall has a beneficial effect on productivity. Higher average temperatures, in particular, limit crop yield, whereas enough rainfall promotes crop growth. Farmers reported using a variety of adaptation methods to deal with climatic stress. These include changing planting dates, growing drought- or flood-tolerant rice varieties, diversifying cropping systems, upgrading irrigation and water management procedures. Based on our findings, we suggest an integrated adaptation paradigm that incorporates better agronomic practices, resilient crop varieties, and increased institutional support (extension services, loan availability, and infrastructure development). Policy proposals include investing in climate-resilient rice research and development, expanding irrigation and drainage infrastructure, and enhancing extension programs to promote climate-smart farming practices. The suggested framework intends to maintain rice yield and food security in the face of climate change by combining local adaptation and supportive policies. These approaches support Sustainable Development Goals 2 (Zero Hunger) and 13 (Climate Action) by increasing the resilience of rice farming and rural livelihoods in a changing climate. Furthermore, these activities help to achieve broader sustainable development goals by improving adaptive ability and guaranteeing consistent food supplies.

Key words: Climate change, rice production, adaptation strategy

ASSESSMENT OF LIGNITE-FIRED POWER PLANTS IMPACT ON INCREASING RADIOACTIVITY CONCENTRATIONS

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Abstract

Lignite-fired power plants are significant contributors to both energy production and environmental pollution. Due to the natural presence of radionuclides such as uranium, thorium, and potassium in lignite, their combustion can lead to the release and redistribution of radioactive materials into the environment. This study provides an assessment of the potential impact of lignite combustion on increasing radioactivity concentrations in surrounding ecosystems and human habitats. The assessment considers factors such as lignite composition, combustion processes, ash disposal practices, and atmospheric dispersion of particulates. Results from previous research and international reports indicate that areas near lignite-fired plants often show elevated radiation dose rates compared to regional background levels. Although these levels generally remain below regulatory limits, cumulative exposure and improper waste management can pose long-term radiological risks. The study emphasizes the need for continuous environmental monitoring, improved waste handling, and the gradual transition toward cleaner energy sources to mitigate radiological and ecological impacts.

Keywords: Radioactivity, power plant, lignite, ash, fly ash.

LIFE CYCLE ASSESSMENT OF AGRICULTURAL WASTES FOR DETERMINING CARBON AND WATER FOOTPRINTS

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ABSTRACT

This study evaluates the environmental performance of agricultural waste utilization systems through a Life Cycle Assessment (LCA) framework based on ISO 14040/44 standards. The analysis focuses on three major residues - wheat straw, rice husk, and corn stover - comparing open-field burning, anaerobic digestion, and pyrolysis as alternative treatment scenarios. Life cycle inventory data were sourced from Ecoinvent v3.9, FAO 2023, and recent peer-reviewed LCA studies. Results reveal that open burning produces the highest carbon footprint (average 2.35 kg CO_2-eq /kg waste), primarily due to uncontrolled methane and nitrous oxide emissions. By contrast, anaerobic digestion reduces total GHG emissions by 52–61%, and pyrolysis by up to 68%, mainly because of energy recovery and biochar carbon sequestration. The water footprint, assessed using the AWARE methodology, ranged from 1.1–1.9 m^3 H_2O-eq /kg waste, depending on process water demand and regional scarcity factors. Integrating treated wastewater reuse in biogas plants can lower freshwater consumption by approximately 30%. Overall, the results indicate that valorizing agricultural residues through circular bioenergy systems provides substantial carbon and water footprint reductions, promoting climate-resilient agricultural management and resource-efficient energy transition.

Keywords: Agricultural residues, Life Cycle Assessment, Carbon footprint, Water footprint, Circular bioenergy

MANAGEMENT OF AGRICULTURAL WASTES IN FARMS: ENERGY RECOVERY AND POTENTIAL ENVIRONMENTAL IMPACTS

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ABSTRACT

Agricultural production generates significant amounts of organic residues, including manure, crop residues, and processing by-products. The proper management of these wastes is essential to minimize environmental risks while recovering valuable energy and nutrients. This study reviews the operational practices, energy recovery potential, and environmental implications of agricultural waste management in farm systems. The analysis highlights that livestock manure and crop residues represent the largest biomass sources, contributing over 30-40% of total agricultural waste mass globally (FAO, 2023). Energy recovery technologies such as anaerobic digestion, gasification, and pyrolysis can convert these residues into biogas, bio-oil, and biochar with an average conversion efficiency of 55-70%. When integrated into farm-scale energy systems, these technologies can offset fossil fuel use and reduce greenhouse gas emissions by up to 60% compared to uncontrolled waste disposal. However, improper management practices such as open-field burning or direct discharge lead to severe environmental impacts - including methane (CH_4) and nitrous oxide (N_2O) emissions, soil degradation, and eutrophication. Life Cycle Assessment (LCA) results from recent studies show that optimized manure digestion and nutrient recycling can reduce the overall carbon footprint by 45–65% and minimize water pollution loads. In conclusion, the valorization of agricultural waste through integrated energy recovery and nutrient management systems represents a sustainable pathway for improving energy efficiency, reducing emissions, and promoting circular economy principles in agricultural production.

Keywords: Agricultural residues, Energy, Pyrolysis, Anaerobic digestion, Circular bioeconomy

SEASONAL VARIATION OF DUNG BEETLE COMMUNITY STRUCTURE IN THE SOUTHERN RIF, MOROCCO

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Abstract

Dung beetles play a crucial role in the decomposition of organic matter and nutrient recycling, thus contributing to soil fertility and the health of terrestrial ecosystems. Despite their ecological importance, few studies have focused on the biodiversity and seasonal dynamics of these communities in the southern Rif.

In order to study the seasonal variation of dung beetle populations in the Southern Rif, three sites were chosen based on the differences in their environmental factors, such as altitude, climate, soil, etc. Sampling was carried out monthly during a biological cycle from February 2021 to January 2022, according to a standardized protocol using CSR-type traps.

The results obtained reflect an understanding of the biodiversity of the fauna (Coleoptera: Scarabaeoidea) in this Moroccan region. We captured several species belonging to different families, with spatial variations in species richness and abundance from one station to another due to differences in environmental factors between these stations. We also observed temporal variations in this population, which are more pronounced between seasons, with species richness at its highest in May and the majority of captured species being active during the spring at all three stations. This could be due to variations in the availability of trophic resources throughout the year, as well as the phenology of the different species.

Keywords: Seasonal Variation, Dung Beetle, Southern Rif, Morocco.

DATA COLLECTION METHODS AND TOOLS IN SCIENTIFIC RESEARCH

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ABSTRACT

Introduction: Scientific research involves identifying a problem and examining, elaborating, and evaluating it through universal scientific methods. Data collection, a fundamental step in scientific research, ensures obtaining systematic and reliable data suitable for the research purpose.

Purpose: This review aims to guide researchers methodologically by presenting the methods and tools used in qualitative and quantitative data collection processes in scientific research, highlighting the principles to consider when selecting these methods and tools, as well as their advantages and limitations.

Conclusion: In qualitative research, data collection is carried out using methods such as interviews, observations, and document analysis, aiming to gain an in-depth understanding of individuals' emotions, thoughts, experiences, and perceptions. Interviews are categorized into three groups: structured, semi-structured, and unstructured. Additionally, interviews are diversified through techniques such as focus groups and in-depth interviews. Conversely, quantitative research primarily relies on numerical data, obtaining measurable results through instruments including surveys, scales, tests, structured observations, as well as data collection from records and documents. Notably, scales are measurement tools adapted to the culture and language of the population being studied. Scales are classified into ordinal and classificatory types. While quantitative data provide generalizable and statistically analyzable information, qualitative data are more focused on meaning and interpretation.

Key Words: Research, nursing, quantitative data, qualitative data, data collection methods

QUALITATIVE RESEARCH METHODS IN NURSING: A THEORETICAL REVIEW

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ABSTRACT

Introduction: In the development process of nursing science, there has been a need for theoretical propositions regarding interpretive approaches in line with the individual-centered paradigm. This approach focuses on deeply understanding and interpreting the context in which the individual exists. The scientific structuring and application of this interpretive perspective is primarily achieved through qualitative research methods.

Purpose: The purpose of this review is to examine qualitative research methods that have emerged in parallel with the individual-centered understanding in the development of nursing science and to comprehensively reveal their use in the field of nursing.

Conclusion: Qualitative research is a research method that aims to discover and interpret the depth, context, and complexity of human experiences, actions, and social environments rather than measuring or expressing them quantitatively. This method is naturalistic and interpretive, aiming to capture participants' subjective perspectives and lived experiences. Types of qualitative research are grouped as phenomenology, grounded theory, ethnography (folk description), case study, and other approaches. It generally focuses on understanding the "why" and "how" of phenomena through open-ended questions and flexible research designs. Data is usually collected in the form of words, pictures, or observations rather than numbers. Data collection tools include interviews, focus groups, observations, diaries, or document analysis. In nursing, qualitative research is a research method that allows nurses to understand their interactions with patients, their motivations, challenges, and successes.

Key Words: Nursing, qualitative research, phenomenology

HEALTH INFORMATICS AND SOFT DEVELOPMENT IN HEALTHCARE

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ABSTRACT

Health informatics and software development play a pivotal role in the digital transformation of modern healthcare. AI-powered systems contribute significantly to clinical and operational improvements, including enhanced diagnostic precision, faster treatment, and more efficient hospital workflows. However, challenges such as data privacy, ethical accountability, model generalizability and regulatory compliance must be adressed to ensure safe and sustainable adoption.

In conclusion, advancement in health informatics and software development hold great potential for improving care quality and ensuring and sustainability of healthcare systems. Realizing this potential requires interdisciplinary collaboration, collaboration, standardization, and continuous evaluation.

Keywords: Electronic Health Records, Clinical Decision Support Systems, Data interoperability, Big data analytics for population health

INVESTIGATION OF TOPOPHILY THEORY IN THE CONTEXT OF VAN YÜZÜNCÜYIL UNIVERSITY ZEVE CAMPUS

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ABSTRACT

Introduction and Purpose: This study aims to investigate Topofilya, which is a basic concept developed by the famous geographer Yi-Fi Tuan in terms of landscape designs, landscape aesthetics and geography, and study investigateing it in the context of Van Yüzüncü Yıl University Zeve Campus. Topophilia refers to the emotional bonds, attitudes and value judgments that a person or a community develops towards a certain physical environment, place or landscape. In this respect, it is a concept that has pioneered important studies such as attachment to place and definition of place since the first moment it appeared.

Materials and Methods: The study will be carried out at Van Yüzüncü Yıl University Zeve Campus within the framework of expert evaluations on Topophilia Theory. In this respect, the evaluations made by three different experts in terms of topophilia constitute the main material of the study. The main purpose of the study is to evaluate the bonds formed for different spaces on the Zeve campus of Van Yüzüncü Yıl University in the context of expert evaluations, considering that the relationship between human and environment is not only survival and adaptation, but also includes an emotional bond. In order to embody this theory, the ground campus of Van Yüzüncü yıl University has been determined as the study area.

Results: The findings show that topophilia is valid for both natural and artificial environments. The study conducted on the YYU campus shows that it strengthens the sense of belonging as well as the semantic richness it offers to users. This result shows how important emotional and cultural values are in planning future environmental and spatial arrangements. In this way, it will be possible to create more sustainable and livable areas and will shed light on the studies to be carried out to increase the bound to the place.

Key Words: Topofilia, Campus, Attachment to place, Space and place, Emotional attachment

A LOOK AT "REBIRTH" FIGURES FROM AYAZ ATA TO SANTA CLAUS

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ABSTRACT

Introduction and Purpose: From past to present, societies have transmitted, orally and in writing, the various narratives they have remembered and the beliefs that have influenced their lives. They have continued to perpetuate traditions and narratives adopted from different cultures by synthesizing them with their own values. Figures such as Ayaz Ata or St. Nicholas (Santa Claus), which symbolize "rebirth," trees, and certain animals represent changing sociocultural dynamics. Our aim in this study is to evaluate these figures, which have changed or transformed throughout history, from a social, cultural, economic, and touristic perspective, and to provide examples of the functioning of social memory.

Materials and Methods: Since the study is based on rebirth figures, various books, articles and papers containing relevant figures were used and up-to-date data was obtained by scanning internet sources, blogs and sites.

Results: It has been determined that the origins of the New Year celebrations, which are adopted almost all over the world today, are based on mythological foundations involving natural elements, but it has also been observed that the figures shaped around the axis of rebirth change and transform under social conditions.

Discussion and Conclusion: While religious and mythological figures that profoundly influence societies have existed with unique and limited meanings throughout history, their meaning can expand under the influence of changing/updating circumstances. Today, some figures, whose very existence is often overlooked by the vast majority of the world, continue to influence social life, even if their existence remains a matter of debate.

Key Words: Santa Claus, Ayaz Ata, Nardugan, Rebirth

FROM ANKYLOSIS TO OSTEOARTHRITIS: A PILOT STUDY ON DEGENERATIVE CHANGES IN THE CONTRALATERAL TEMPOROMANDIBULAR JOINT

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ABSTRACT

Introduction and Purpose: Temporomandibular joint (TMJ) ankylosis is a severe pathology that causes restriction of mastication function and marked facial asymmetry. Following ankylosis, the redistribution of functional load toward the contralateral joint may gradually induce compensatory osteoarthritic changes. The aim of this pilot study is to evaluate the development of osteoarthritis in the contralateral joint of patients with TMJ ankylosis using panoramic radiography and cone-beam computed tomography (CBCT).

Materials and Methods: 18 patients diagnosed with TMJ ankylosis between 2016 and 2025 were included in the study. Panoramic radiographs of all patients were retrospectively evaluated, and in 5 of these patients, available CBCT scans were additionally assessed. The parameters of osteophyte formation, subchondral bone cyst (SKK), erosion, and generalized sclerosis were examined by two observers at two different sessions using a blinded evaluation approach. Inter- and intra-observer agreement was analyzed using Cohen's Kappa coefficient.

Results: On panoramic evaluation, osteophytes were detected in 5 patients (27.8%) ipsilaterally and 1 patient (5.6%) contralaterally; SKK in 2 patients (11.1%) ipsilaterally and 5 patients (27.8%) contralaterally; erosion in 2 patients (11.1%) ipsilaterally and 4 patients (22.2%) contralaterally; and generalized sclerosis in 2 patients (11.1%) ipsilaterally and 3 patients (16.7%) contralaterally. CBCT evaluation revealed osteophyte formation in 2 patients (40%) ipsilaterally and 3 patients (60%) contralaterally; SKK in 1 patient (20%) ipsilaterally and 2 patients (40%) contralaterally. Erosion was observed only ipsilaterally (1 patient, 20%). The inter- and intra-observer agreement was excellent for OPG ($\kappa = 1.00$) and good-to-excellent for CBCT ($\kappa = 0.61–1.00$). These findings suggest that asymmetric biomechanical loading following ankylosis may trigger compensatory remodeling and osteoarthritic changes in the contralateral TMJ. TMJ ankylosis may alter the distribution of functional stress by restricting joint motion, predisposing the contralateral side to degenerative changes. Due to the limited sample size, this study serves as a preliminary investigation providing early insights into the potential etiopathogenetic relationship between TMJ ankylosis and osteoarthritis.

Key Words: Temporomandibular joint; Ankylosis; Osteoarthritis; Cone Beam Computed Tomography;

PREVALENCE OF BIFID MANDIBULAR CONDYLE: A RETROSPECTIVE STUDY ON 55,976 PANORAMIC RADIOGRAPHS

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ABSTRACT

Introduction and Purpose: Bifid mandibular condyle (BMC) is a rare morphological variation characterized by the presence of two distinct heads of the mandibular condyle. Its etiology and clinical relevance remain controversial, and the prevalence rates reported in the literature vary widely. The aim of this study was to determine the prevalence of BMC in a large Turkish population using panoramic radiographs and to analyze its demographic distribution in comparison with previous studies.

Materials and Methods: In this retrospective study, a total of 55,976 panoramic radiographs obtained between 2019 and 2023 were evaluated. The presence of BMC was identified based on defined morphological criteria, and its distribution according to gender, age, side (right/left), and unilateral/bilateral occurrence was recorded. All images were independently reviewed twice by two oral and maxillofacial radiologists. Intraobserver and interobserver reliability were assessed using weighted Kappa statistics. Gender differences were analyzed using Chi-square tests. All statistical analyses were performed with Stata 17.0, and $p < 0.05$ was considered statistically significant.

Results: Among 542 identified BMC cases, no statistically significant difference was found between female (n = 335) and male (n = 207) patients regarding the distribution of right, left, or bilateral occurrence ($\chi^2 = 2.533$, $p > 0.05$). In females, 36.7% of cases were right-sided, 29.3% left-sided, and 34.0% bilateral, whereas in males, 36.7% were right-sided, 34.3% left-sided, and 28.0% bilateral. Overall, 37.1% of all BMCs were right-sided, 31.2% left-sided, and 31.7% bilateral. Unilateral BMCs were more frequent than bilateral forms. This study represents one of the largest population-based investigations of BMC conducted using panoramic radiographs. The lack of association between BMC and osteoarthritis may indicate a potential protective biomechanical role. Further CBCT-based, prospective, and clinically correlated studies are warranted.

Key Words: Bifid mandibular condyle; Panoramic radiography; Prevalence

THE EFFECTS OF CLIMATE CHANGE ON FLOODS: AN ASSESSMENT OF THE LAST 15 YEARS IN TÜRKİYE

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ABSTRACT

Climate change affects the frequency and severity of flood disasters through irregularities in rainfall patterns and an increase in extreme weather events. Due to its geographical location and topographical features, Türkiye is one of the countries most affected by these disasters. This study examines flood and torrent events that occurred in Türkiye between 2010 and 2024. Data were compiled from both international and national sources, including the EM-DAT (Emergency Events Database) at the global level and the official disaster assessment reports published by the Turkish State Meteorological Service (MGM) at the national level. The data were then classified by year and geographical regions. The analyses, based on EM-DAT data covering 2010–2024 and MGM disaster reports covering 2010–2023, revealed an upward trend in the number of disasters, with 2023 standing out as the year with the highest frequency in recent years. Regionally, disaster frequency was highest in the Black Sea, Marmara, and Aegean regions, while Eastern and Southeastern Anatolia reported markedly lower numbers. The results revealed that the recent impacts of climate change are becoming more evident in Türkiye, leading to heightened risks of floods and torrents. Therefore, disaster risk management, land use and urbanisation policies need to be replanned and implemented in a manner that takes climate change into account.

Key Words: Global warming, Flood, Flash flood, Torrent, Disaster Management.

FACTORIAL DESIGN OPTIMIZATION OF THE METHYLENE BLUE ADSORPTION PROCESS ONTO APATITE-MATERIALS

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Abstract

Over the past few years, grafted hydroxyapatite (HAp) has emerged as a promising material for environmental remediation due to its tunable physicochemical properties and high adsorption potential. In this study, HAp was functionalized with AMP molecules at different grafting rates to enhance specific structural and chemical characteristics, with the aim of increasing its adsorption capacity for methylene blue (MB) dye. The synthesis was performed via a controlled wet precipitation process, based on the neutralization of calcium hydroxide ($Ca(OH)_2$) and ammonium dihydrogen phosphate ($NH_4H_2PO_4$) solutions in an aqueous medium at ambient temperature (25 °C), enabling the formation of homogeneous apatite matrices with tailored surface properties.

The resulting HAp and HAp-AMP materials were comprehensively characterized using X-ray diffraction (XRD) to evaluate crystallinity and phase composition, Fourier-transform infrared (FTIR) spectroscopy to confirm AMP grafting and functional group interactions, and Brunauer–Emmett–Teller (BET) analysis to determine specific surface area, pore volume, and porosity. These analyses confirmed the successful incorporation of AMP molecules into the HAp framework and revealed enhancements in parameters critical for adsorption, including surface area and porosity, which directly influence the interaction between the adsorbent and the dye molecules.

The adsorption behavior of MB onto these materials was investigated through a systematic full factorial experimental design using Design-Expert software, examining the combined effects of initial dye concentration, solution pH, and contact time. This approach allowed for the identification of optimal operational conditions and provided a quantitative understanding of the factors governing adsorption efficiency. Under optimized conditions—an initial MB concentration of 460 $mg \cdot L^{-1}$, a contact time of 135.5 minutes, and 298 K—the maximum adsorption capacity was found to be 328.78 $mg \cdot g^{-1}$.

These findings demonstrate that AMP-grafted HAp exhibits significantly improved adsorption performance compared to unmodified HAp, highlighting its potential as an efficient and tunable adsorbent for the removal of organic dyes from aqueous solutions. This study provides a valuable framework for the design of functionalized apatite-based materials for wastewater treatment applications, emphasizing the importance of surface modification in optimizing adsorption capacity and selectivity.

Keywords: Pollution, Hydroxyapatite, Aminotrimethylene phosphonic acid, Methyleneblue, Adsorption, Optimization

HYDROXYAPATITE PREPARED FROM BOVINE BONE AS AN EFFICIENT ADSORBENT FOR METHYLENE BLUE REMOVAL FROM AQUEOUS MEDIA

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Abstract

The rapid expansion of industrial activities, particularly in the textile, paper, and plastic sectors, has resulted in the continuous discharge of dye-laden effluents into aquatic systems. These pollutants, notably methylene blue (MB), are highly stable, toxic, and resistant to biodegradation, posing serious risks to both ecosystems and human health. Consequently, the development of efficient, low-cost, and environmentally sustainable methods for wastewater decontamination has become an urgent research priority. Among available technologies, adsorption has emerged as one of the most promising approaches due to its simplicity, economic viability, and high effectiveness in removing various contaminants, including organic dyes and heavy metals.

In this study, hydroxyapatite (HA) synthesized from bovine bone waste was evaluated as an adsorbent for the removal of methylene blue from aqueous solutions. The synthesis process involved multiple steps cleaning, degreasing, and calcination of bovine bones at 900 °C for six hours to eliminate organic matter and obtain a pure, crystalline HA phase. This valorization of biological waste not only reduces environmental burden but also produces a functional material with desirable physicochemical characteristics for adsorption applications.

The synthesized hydroxyapatite was characterized using X-ray diffraction (XRD) and Fourier-transform infrared spectroscopy (FTIR). XRD analysis revealed well-defined peaks corresponding to stoichiometric HA, confirming the crystalline nature of the material. FTIR spectra exhibited characteristic absorption bands associated with phosphate (PO_4^{3-}) and hydroxyl (OH^-) groups, as well as minor carbonate vibrations, suggesting partial substitution that may enhance surface reactivity. The resulting material thus possessed a high surface area and a porous structure favorable for adsorption.

Batch adsorption experiments were performed at room temperature to evaluate the effects of key parameters, including solution pH, contact time, and adsorbent dosage, on MB removal efficiency. Optimal adsorption performance was obtained at pH 11.0, with an adsorbent dose of 2 g L^{-1} and a contact time of 30 minutes. Under these conditions, maximum dye removal was achieved, indicating that electrostatic interactions between negatively charged HA surfaces and cationic MB molecules are the dominant mechanism.

Overall, the results demonstrate that bovine bone derived hydroxyapatite is a highly effective, sustainable, and low-cost adsorbent for methylene blue removal. Its strong adsorption capacity, rapid kinetics, and eco-friendly synthesis highlight its potential for broader applications in wastewater treatment, including the removal of other organic and inorganic pollutants.

Keywords: Depollution; hydroxyapatite; bovine bone; methylene blue; water treatment; adsorption.

PRE- AND POST-LAND CONSOLIDATION PROJECT (LCP) NDVI ASSESSMENT OF AGRICULTURAL CHANGE: BOZAN, ESKİŞEHİR (2000–2025)

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ABSTRACT

This study evaluates the impacts of the land consolidation project (LCP) on agricultural land use and vegetation vigor in Bozan (Eskişehir, Türkiye) by integrating satellite-based vegetation indicators with managerial performance metrics. Vegetation dynamics were quantified using the Normalized Difference Vegetation Index (NDVI) derived from Landsat imagery processed on Google Earth Engine. To capture irrigated-cropping conditions, all scenes were selected for August. We contrast the pre-LCP period (2000, 2005, 2010) with the post-LCP period (2015, 2020, 2025). The LCP was completed in 2014, and the irrigation infrastructure became operational in 2015.

Results indicate a marked enhancement in vegetation vigor after the LCP and irrigation commissioning: mean NDVI increased from 0.028 (pre-LCP) to 0.187 (post-LCP), corresponding to an approximate 558% rise, alongside a more homogeneous spatial distribution of vegetated areas. The LCP performance analysis evidences substantial improvements in farm structure and accessibility: total parcel count decreased from 2,148 to 1,412 (−34.2%), parcels per farm enterprise from 1.96 to 1.52 (≈−22%), the proportion of regularly shaped (square/rectangular) parcels rose from 30.0% to 64.6%, and the legal road access ratio increased from 29.9% to 100%. The road network length expanded from 113.2 km to 165.2 km (≈+45.8%), while average parcel size increased from 23.85 da to 29.13 da (≈+22.1%).

Taken together, these findings suggest that the LCP—coupled with synchronized irrigation investments—reduced land fragmentation, improved parcel geometry and road access, and was associated with substantial gains in vegetation vigor. The evidence provides a quantitative basis for assessing post-LCP agricultural intensification and supports the effectiveness of integrated land and water management interventions in semi-arid irrigated landscapes.

Key Words: LCP; NDVI; Landsat; Google Earth Engine; Irrigated agriculture; Agricultural intensification.

BUILDING PHYSICS PROBLEMS IN HEALTHCARE BUILDINGS: BOLU CASE STUDY

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ABSTRACT

Introduction and Purpose: Structures are essential living areas that satisfy people's physical, social, and cultural demands. Healthcare facilities are especially important among these because of their direct connection to user comfort and human health. In addition to affecting building performance, the physical attributes of healthcare facilities are crucial for maintaining patient comfort and facilitating the productive work of medical personnel. However, extended use and shifting environmental conditions over time frequently cause these structures to develop a number of building physics issues.

Materials and Methods: In this study, building physics problems observed in two different healthcare facilities (Healthcare Building 1 and Healthcare Building 2) located in the city center of Bolu were examined. The present state of the structures was assessed on-site as part of the field investigations, and the deteriorations found were categorized and examined. Following the assessment, the issues were categorized under six primary headings: surface pollution, efflorescence/algae development, corrosion, blistering and flaking on material surfaces, crack forms, and user-induced deformations.

Results: The results show that these physical deteriorations not only compromise a building's structural integrity but also have detrimental effects on indoor hygiene, user health, and comfort levels. The most frequent types of damage discovered during the assessments of Healthcare Building 1 are user-induced deformations, biologically produced contaminations, and blistering and flaking on surfaces. The most prevalent building physics problems in Healthcare Building 2 across all evaluated categories are crack formations and scorching and flaking on surfaces.

Discussion and Conclusion: By choosing the right materials, applying them correctly, and performing routine maintenance and repairs, building physics issues that are seen in healthcare facilities can be lessened. Maintaining sustainable spatial quality requires preventing these issues. In this sense, the study offers leading suggestions for assessing public health and healthcare facility continuity in the context of public benefit.

Keywords: Healthcare Buildings, Building Physics Problems, Bolu

REFLECTION OF THE PEASANT PROBLEM IN ROMANIAN PAINTING FROM THE SECOND HALF OF THE 19TH CENTURY TO THE BEGINNING OF THE 20TH CENTURY

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ABSTRACT

Introduction and Purpose: The peasantry represented the most numerous social category in Romania, with approximately 100% of the population living in rural communes and engaged in farming and related activities. To improve their situation, a series of reforms was adopted throughout the 19th and early 20th centuries. Among them, we mention: the land expropriation of 1864, the agricultural contract law of 1866, the establishment of agrarian banks, etc. However, the situation of the peasants remained difficult, the realities of the rural environment being of a nature to arouse the interest of artists. Therefore, many painters found in the peasants and their world the source of inspiration for their compositions and contributed to the creation of a current of opinion in society favorable to the peasants.

Materials and Methods: The communication aims to select the most relevant paintings inspired by rural life. They were made by significant painters from Romania, such as Nicolae Grigorescu, Theodor Aman, Carol Popp de Szatmary, Octav Băncilă, etc. Their paintings will be analyzed and put into context, to highlight the extent to which the most important social problem in Romania during the mentioned period presented interest for the artistic world and its representatives. Therefore, the paintings that have been selected will be analyzed both in terms of the complexity of the compositions, their characteristics (chromatics, artistic technique), and also in terms of the message conveyed to the viewing public.

Results: From the second half of the 19th century, the peasant problem was constantly present both in the concerns of the political class and in public discourse. Added to this was the inclusion of peasants in artistic discourse. It was proof that the artists of the time were connected to the realities of their time and perfectly aware of the sensitive issues in society.

Discussion and Conclusion: Drawing inspiration from rural realities, painters brought the peasant issue to the attention of the urban public. In most cases, painters preferred to cast an idealized gaze on the villages and their inhabitants, creating compositions in which the peasants are captured in relaxed attitudes or moments of joy. However, there is no complete lack of paintings that draw attention to the tensions and problems concerning the peasants. Consequently, episodes of famine or revolt have also been the subject of paintings that will be analyzed. By creating their paintings, the artists showed concern for their compatriots in rural areas and advocated for the alleviation of their situation.

Key Words: peasantry, paintings, artists, Romania, reform

THE EFFECT OF DIFFERENT AMBIENT TEMPERATURES ON AEROBIC EXERCISE IN MULTIPLE SCLEROSIS: THE SEARCH FOR OPTIMAL TEMPERATURE

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ABSTRACT

Introduction and Purpose: Aerobic exercise is known to improve function, mobility, and clinical outcomes in individuals with Multiple Sclerosis (MS). However, heat sensitivity and heat-induced symptom exacerbation frequently limit participation in exercise. Therefore, determining a suitable ambient temperature for exercise is clinically important. Fatigue is another major problem in MS, negatively affecting quality of life. Although aerobic exercise may help reduce fatigue, the effect of aerobic exercise performed under different ambient temperatures on fatigue remains unclear. In this study, we aimed to investigate the effect of different ambient temperatures during aerobic exercise on fatigue levels in individuals with MS.

Materials and Methods: This study was designed as a controlled experimental trial with a repeated-measures design, in which the order of temperature conditions was randomly assigned. A total of 9 patients with Multiple Sclerosis (MS group) with an EDSS score ≤ 4 and 9 healthy individuals (control group) were included. Perceived fatigue level was assessed using the Modified Borg Scale. Participants were evaluated before, during, and after the exercise. Under the supervision of a physiotherapist, both groups performed treadmill-based submaximal aerobic exercise at four different ambient temperatures: 15°C, 20°C, 25°C, and 30°C.

Results: In both the MS and control groups, perceived fatigue levels showed an increase after exercise across all temperature conditions ($p < 0.05$). However, the magnitude of pre-to-post exercise change in fatigue (Δ) did not differ among the four ambient temperatures (MS: $p = 0.870$, control: $p = 0.186$).

Discussion and Conclusion: Submaximal aerobic exercise performed under different temperature conditions increased perceived fatigue levels in both individuals with MS and healthy controls. However, temperature variation did not appear to influence perceived fatigue. These findings suggest that aerobic exercise can be safely applied to individuals with MS under controlled ambient temperatures.

Key Words: Multiple Sclerosis; Exercise; Temperature; Fatigue

CALCULATION OF THE MASS ATTENUATION COEFFICIENT OF X-RAYS INCIDENT ON CSI AND ITS HALF-VALUE LAYER FOR AN ENERGY RANGE OF 20-80 KEV

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ABSTRACT

Before using X-ray scintillation materials in the manufacture of panels for medical centers and hospitals requiring diagnostic X-ray imaging, it is essential to understand how X-rays interact with the panel's components. This understanding is crucial for predicting the nature of this interaction and utilizing this information during the design process. Panels containing cesium iodide are among the most widely used. Therefore, in this research, we used the XCOM database and the FFAST tool to calculate the mass attenuation coefficient of X-rays incident on cesium iodide, neglecting the effect of thallium, which is added to the crystal currently used in medical centers and hospitals, due to its very low concentration. The calculations were performed within an energy range of 20–80 keV, which falls within the diagnostic X-ray energy range. Mathematical curve fitting was applied to the data extracted from both databases to obtain two empirical equations describing the behavior of the mass attenuation coefficient as a function of photon energy. All calculations and curve plotting were performed using MATLAB 2014. The results showed good agreement between the two methods, confirming the accuracy and reliability of the obtained results. The half-value layer (HVL) was also calculated using mass attenuation coefficient values extracted from XCOM and FFAST, and the results showed good agreement between the values calculated using the two methods.

ASSESSMENT OF THE MUNICIPAL SOLID WASTE MANAGEMENT SYSTEM IN ITATIBA, BRAZIL

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ABSTRACT

The Brazilian municipality of Itatiba has experienced population growth associated with the urbanization process, emerging challenges for the management of municipal solid waste (MWW). The main goal of this research was to evaluate the municipal solid waste management system in Itatiba, in the state of São Paulo, Brazil, by means of an efficiency index adapted to regional conditions. Secondary data and unstructured interviews with municipal managers, survey of secondary data in official reports, and diagnosis of the sanitary landfill allowed the evaluation of the four dimensions that make up the efficiency index of the MSW management system (MSWI): 1) political, structural and financial; 2) gravimetry and logistics; 3) sorting, valuation and composting; and 4) final disposition. The results showed that Itatiba has a political and legislative structure for the management of MSW, at the federal, state and municipal levels. Itatiba presented a partially adequate MSW management system, as MSWI reached 62%. The highlight refers to the collection, transportation and disposal of MSW in landfills. However, the greatest weakness refers to the absence of a composting system and greater participation of scrap dealers in the integrated management of MSW.

Keywords: Environmental Management, Urban Planning, Recycling.

CHEMERIN AND REPRODUCTIVE PHYSIOLOGY RESEARCH IN VETERINARY SCIENCES: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

Introduction and Purpose: Chemerin is an adipokine known to regulate adipogenesis, lipid metabolism, inflammation, and immune response. Recent studies suggest that it also influences reproductive physiology by modulating processes such as folliculogenesis, steroidogenesis, and gametogenesis. This study aimed to perform a bibliometric analysis to evaluate global research trends, key contributors, and thematic focuses related to chemerin and reproductive physiology within veterinary science.

Materials and Methods: Data were retrieved from the Scopus database for the period 2015–2025 using the keywords "chemerin," "veterinary medicine," and "reproductive physiology." Bibliometric indicators were analyzed using RStudio (Biblioshiny) and VOSviewer software to assess publication and citation trends, author and country productivity, and keyword networks.

Results: A total of 172 publications were identified. The number of studies notably increased after 2019, peaking in 2023 and 2024. Poland ranked as the most productive country, with Nina Smolińska identified as the leading author. The Université de Tours (France) and Henan Agricultural University (China) were the most active institutions, reflecting strong Europe–Asia collaboration. "Pig" was the most frequent keyword, suggesting its dominance as a model organism. Thematic clustering indicated growing attention toward "ovary," "apoptosis," and "oxidative stress," highlighting chemerin's molecular role in reproductive regulation.

Discussion and Conclusion: Findings show a rapid expansion of chemerin-related reproductive research, emphasizing its significance as a link between metabolic and reproductive systems. Chemerin may represent a potential biomarker for fertility and reproductive efficiency. Future studies should focus on its molecular mechanisms and cross-species roles to advance understanding of reproductive physiology in veterinary medicine.

Keywords: Chemerin; Reproductive Physiology; Bibliometric Analysis; Veterinary Science; Oxidative Stress; Apoptosis

SUSTAINABLE DIGITAL SAMPLING IN FASHION WITH CLO3D VIRTUAL PROTOTYPES

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Abstract

This study examines the role of CLO 3D in sustainable digital manufacturing within the fashion industry. Virtual prototype with CLO 3D offers a creative way to reduce material waste, improve design accuracy, and streamline production processes as sustainability becomes a top concern for brands. This study examines how top luxury and commercial firms use CLO 3D to boost operational effectiveness and meet sustainability targets. Case studies of companies that have integrated CLO 3D into their design and sampling processes, including Adidas, Gucci, Balenciaga, and Tommy Hilfiger, were used to perform a qualitative analysis. The study compares traditional prototypes with virtual prototypes on the basis of visualization quality, resource efficiency, and time consumption. According to the results, CLO 3D is essential to resource efficiency, waste minimization, and sustainable production methods. Virtual prototypes have been effectively used by companies like Adidas and Tommy Hilfiger for virtual fits and digital prototyping, which eliminates the need for numerous physical samples. Gucci and Balenciaga have demonstrated the possibilities of digital-first, sustainable luxury design for virtual runway presentations and digital fashion collections. Furthermore, by facilitating quick design revisions and on-demand manufacturing models, CLO 3D improves supply chain efficiency by reducing overproduction and unsold inventories.

Keywords: CLO 3D, sustainable fashion, digital prototyping, virtual sampling, waste reduction, supply chain efficiency.

INTEGRATION OF INFORMAL INTERACTIVE SPACE IN A DESIGN OF FACULTY OF ARCHITECTURE

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Abstract

The integration of informal interactive spaces within the design of a Faculty of Architecture represents a strategic approach to fostering creativity, collaboration, and knowledge exchange among students and faculty members. Unlike traditional classroom and studio environments, informal interaction zones provide flexible, student-centered platforms for spontaneous dialogue, peer learning, and interdisciplinary engagement, which are essential in architectural education. This study explores the significance of incorporating such spaces into faculty building designs, highlighting their role in enhancing communication, social cohesion, and academic performance. Through a review of literature, case studies, and analysis of spatial qualities to identify key design parameters. Descriptive research design with a qualitative and quantitative approach was adopted as it allows for systematic exploration of existing informal interactive spaces within faculties' of architecture while capturing user perceptions and spatial characteristics. The findings shows that many faculty are design with little or no consideration for user centric design idea which is the bedrock of informal interaction among users and also aligns with existing literature on the importance of informal spaces in educational environments. The study concludes that integrating informal interactive space in the design of faculty of architecture significantly shapes the students social and academic performance. It also suggests to the architects, designer and relevant authority to prioritizes its inclusion during the design stages.

Keywords: student centered learning, informal space, interaction, Architecture.

PRE-ADMINISTRATION WITH NIGELLA SATIVA SEED POWDER CAUSED ALTERATIONS IN ANTIBODY AND SERUM INTERFERON GAMMA PROFILES IN COCKERELS CHALLENGED WITH A VERY VIRULENT INFECTIOUS BURSAL DISEASE VIRUS

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Abstract

Infectious bursal disease (IBD) impairs the immune system of young birds, reducing protective antibody levels. This study evaluated antibody and serum interferon-gamma (INF-γ) responses in cockerels pre-administered with *Nigella sativa* seed powder (NSSP) and challenged with a very virulent IBD virus (vvIBDV). One hundred one-day-old Dominant Black Marshal Cockerels were divided into five groups (A–E, 20 birds each). Groups A and B received standard feed from 1–42 days of age (doa); groups C and D received NSSP from 21–27 doa; and group E received NSSP continuously from 1–42 doa. All birds were vaccinated against Newcastle disease at 7 and 17 doa. On day 28, groups B, D, and E were orally challenged with vvIBDV. Blood samples were collected for enzyme-linked immunosorbent assay of IBD antibody and INF-γ. Maternal antibody titres declined ($P < 0.05$) from protective levels at 1 doa to below breakthrough levels at 14 doa in groups A–D but remained protective in group E. Following challenge, groups D and E showed significantly higher ($P < 0.05$) antibody titres, with group E maintaining the highest levels throughout. Serum INF-γ increased between 7 and 21 doa in all groups, and from 29 to 42 doa, group E showed the highest levels compared to D and B. Pre-administration of NSSP slowed maternal antibody decay and enhanced post-challenge immune responses. Thus, dietary inclusion of NSSP may provide a natural strategy to sustain IBD antibody protection and improve immune performance in poultry.

Keywords: *Nigella sativa*, IBD, maternal antibody decay, responses

ARTIFICIAL INTELLIGENCE (AI) AND TEACHING LANGUAGE IN A LEBANESE SCHOOL CONTEXT – AN INSIGHT ON A FUTURE PLAN

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ABSTRACT

Artificial intelligence, often likened to the "new electricity" by Andrew Ng (2016), is ubiquitous in our daily lives, reshaping our methods of teaching and learning. In the field of language education, its emergence raises concerns regarding the preservation of intellectual integrity, copyright protection, as well as the development of critical and digital skills among young learners (Cavalla & Mangiante, 2023; Ollivier, 2018). However, the advent of artificial intelligence tools opens new perspectives and promising pedagogical opportunities for both teachers and students (UNESCO, 2023). The aim is to enhance both equity and quality in education. By combining theory, empirical research, and concrete examples, this article will explore the potential benefits of integrating AI by examining perspectives, challenges, and strategies for implementing this innovation in French language teaching and learning in the school context. The objective of this research is to provide language teachers, and policy makers with insights about training in AI for education and integrating AI in the curricula. Several questions will be addressed: What are the AI tools specific to the French language learning, and how can they be integrated into teaching methods? How can AI support be designed to be personalized according to the individual needs of students? How can teachers be guided in analyzing AI-generated content to adapt it appropriately to their teaching context?

Keywords: Artificial intelligence, Equity and quality in education, Personalized learning, Language learning

ASSESSING THE APPLICABILITY OF SALIVA FOR IMMUNE-RELATED GENE EXPRESSION STUDIES IN ADVANCED PERIODONTITIS

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Abstract

Periodontitis is a common chronic inflammatory disease that affects the supporting structures of the teeth and can lead to tooth loss if left untreated. Beyond its local impact, the condition is increasingly recognized as a component of systemic inflammation, involving activation of immune pathways and cytokine networks. Understanding these molecular processes requires reliable biological material that reflects both local and systemic immune activity.

Up to now, most gene expression studies in periodontitis have been performed using peripheral blood, which provides information about systemic immune status but is obtained through an invasive procedure. In this study, we aimed to evaluate whether saliva could serve as a convenient and non-invasive alternative for RNA-based functional analyses of immune system-related genes in patients with advanced periodontitis.

Saliva samples were collected from twelve patients diagnosed with severe disease. Total RNA was extracted, and its concentration and purity were measured spectrophotometrically. RNA concentrations ranged from 20.0 to 98.5 ng/μl (mean = 45.8 ng/μl), while A260/280 ratios varied between 1.42 and 1.83 (mean = 1.61), values that indicate moderate purity and acceptable quality for downstream transcriptional assays. Despite natural variability among individuals, all samples yielded RNA suitable for further gene expression evaluation.

Our findings suggest that saliva can provide RNA of adequate yield and purity to analyze the expression of immune-related genes in periodontitis. Given its easy and non-invasive collection, saliva represents a promising biological source for molecular investigations of inflammatory processes and may support broader diagnostic and research applications in health sciences.

This study is a part of the project D-125/29.05.2024 financed by the Council of Medical Science, Medical University - Sofia, Bulgaria

Keywords: periodontitis, saliva, gene functionality, non-invasive approach.

CHEMCYBER SECURITY: STRENGTHENING DIGITAL SAFETY IN MODERN CHEMICAL RESEARCH AND INDUSTRY

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Abstract

In recent years, the rapid integration of digital tools into chemical science has created both opportunities for innovation and new risks for data security. The increasing use of automation, simulation software, Internet of Things (IoT)–enabled laboratory instruments, and cloud-based storage systems has expanded the digital footprint of chemical research and industry. However, this transformation has also exposed sensitive chemical data, proprietary formulations, and industrial process parameters to cyber threats such as data breaches, system manipulation, and intellectual property theft.

The concept of ChemCyber Security represents a new interdisciplinary domain aimed at protecting chemical information systems through advanced cyber defense mechanisms. This paper examines how cryptographic techniques, blockchain verification, and artificial intelligence–based threat detection can be applied to secure digital chemistry platforms. It further discusses the importance of secure network design in automated laboratories, real-time monitoring of chemical process control systems, and encrypted data sharing among research collaborators.

By integrating the principles of cyber security with the practices of chemical informatics and smart manufacturing, ChemCyber Security offers a holistic framework to ensure data integrity, confidentiality, and process safety. The adoption of such a framework not only safeguards scientific innovation but also supports sustainable and ethical growth within the global chemical industry.

Keywords: ChemCyber Security, Digital Chemistry, Blockchain, Artificial Intelligence, Data Integrity, Industrial Cyber Safety, Chemical Informatics.

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DREAMS IN THE BOOK OF DANIEL: THE SYMBOLIC LANGUAGE OF THE DIVINE PLAN

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ABSTRACT

The Holy Bible constitutes a remarkably rich source for the study of dreams. Within the corpus of the Old Testament, the Book of Daniel stands out as one of the most comprehensive texts addressing this theme. Daniel, the eponymous figure of the book, is portrayed as a prophet endowed with the divine gift of dream interpretation. Through this prophetic ability, the visionary narratives recorded in the Book of Daniel are elucidated.

The revelations Daniel receives through dreams convey symbolic messages concerning both the future of the people of Israel and the broader trajectory of world history. Among these visions, King Nebuchadnezzar of Babylon's dream in the second chapter is particularly noteworthy. Daniel interprets the statue composed of four distinct materials as representing four successive empires, while its eventual destruction is depicted as a divine prophecy foretelling the downfall of these kingdoms.

Daniel's visions in chapters seven and eight—featuring beasts, a ram, and a goat—are likewise characterized by rich symbolic imagery. A recurring theme throughout these dreams is the ultimate sovereignty of God over history and the transience of earthly kingdoms. In this context, the Book of Daniel reveals the divine plan through symbolic language, thereby imbuing historical events with theological significance. It also plays a pivotal role in shaping eschatological thought. These narratives suggest that human history unfolds not merely through political or military developments, but within a divinely ordained framework. Daniel's dreams function as revelations that unveil God's mysterious will concerning the course of history, thereby occupying a foundational place in the theological development of both Jewish and Christian apocalyptic thought.

Keywords: Dream, Bible, Daniel, Old Testament, Christianity, Judaism.

MULTI-METHOD ANALYSIS OF MATHEMATICS PLACEMENT ASSESSMENTS: CLASSICAL, MACHINE LEARNING, AND CLUSTERING APPROACHES

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ABSTRACT

Introduction and Purpose: Mathematics placement examinations critically determine student access to appropriate coursework, yet many institutions rely on ad hoc cut-score thresholds without empirical validation. This study applies a multi-method framework combining Classical Test Theory (CTT), machine learning, and clustering analysis to evaluate a 40-item mathematics placement examination and optimize placement accuracy.

Materials and Methods: Data comprised 198 student records across seven academic terms (Summer 2022–Fall 2024). CTT analysis assessed item difficulty, discrimination indices, and point-biserial correlations. Machine learning algorithms (Random Forest, Gradient Boosting, SVM, Neural Network) predicted placement categories using 5-fold cross-validation. Feature importance identified critical items via Random Forest importance, ANOVA F-statistics, and mutual information. K-means clustering (k=2–6) discovered natural competency groupings, validated through silhouette analysis and bootstrap resampling (ARI metric).

Results: CTT revealed 55% of items achieved excellent discrimination ($D \geq 0.40$) while 30% demonstrated poor discrimination ($D < 0.20$). Question 6 (Graph Interpretation) dominated with perfect discrimination ($D = 1.000$), highest F-statistic ($F = 4609.1$), and maximum Random Forest importance (0.206). Random Forest achieved 97.5% cross-validation accuracy. Clustering identified optimal binary structure (k=2, bootstrap ARI = 0.855) with natural boundary at 42.5%, substantially lower than institutional threshold of 55%. Cluster 0 (n=84, mean=26.0%) exhibited perfect purity (100% College Algebra); Cluster 1 (n=114, mean=61.3%) contained mixed placement categories.

Discussion and Conclusion: Convergent evidence across methods provides robust foundation for placement optimization. The 12.5 percentage-point divergence between natural boundary (42.5%) and institutional threshold (55%) suggests potential overclassification into remedial categories. Recommendations include: replace 12 poor-performing items; lower College Algebra threshold to align with natural structure; implement two-stage assessment; integrate

Random Forest predictions with transparency mechanisms. Multi-method integration combining traditional psychometric and machine learning approaches enables evidence-based placement system optimization.

Key Words: Classical Test Theory; Educational Data Mining; Machine Learning; Mathematics Placement; Random Forest; Student Assessment; Clustering Analysis

ARTIFICIAL INTELLIGENCE IN DEFENCE: TRANSFORMING MODERN WARFARE AND SECURITY SYSTEMS

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Abstract

The rapid advancement of artificial intelligence (AI) technologies has profoundly transformed the defense sector, reshaping strategies, decision-making, and combat operations. AI's ability to analyze complex datasets, recognize patterns, and make autonomous or semi-autonomous decisions enables military systems to respond faster and more accurately than ever before. This review examines the evolution, applications, methodologies, and implications of AI in defense, exploring its role in autonomous weaponry, cybersecurity, surveillance, logistics, predictive maintenance, and strategic planning. Through a systematic analysis of existing literature, the paper highlights how AI is revolutionizing the nature of modern warfare, strengthening situational awareness, and reducing human cognitive load in complex defense environments. Additionally, it evaluates ethical and legal concerns, emphasizing the necessity of governance, transparency, and accountability in deploying AI-enabled systems. The findings underscore AI's dual-use potential, where innovations in civilian domains accelerate defense capabilities while raising concerns about misuse, bias, and control. The paper concludes that AI's integration in defense marks a pivotal transformation in global security architecture, urging balanced development guided by ethical frameworks and international cooperation.

Keywords: Artificial Intelligence; Defense Technology; Autonomous Systems; Military Robotics; Cybersecurity; Surveillance; Machine Learning; Decision Support; Ethics; Warfare Automation

DEVALUED LABOR IN THE AGE OF AUTOMATION: ECONOMIC PRESSURES ON HUMAN TRANSLATORS IN THE ERA OF GENERATIVE AI

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Abstract

Over the last few years, artificial intelligence (AI)—particularly large language models (LLMs) and neural machine translation (NMT)—has swept through the world of translation studies, promising speed, scale, and flawless communication. For those who have spent years mastering languages and learning about various cultures, though, behind the glossy headlines lies a significantly messier reality: professional translators. Far from just 'increasing productivity', AI seems to have inconspicuously transformed the economics of translation as a field of study. It has done this by driving rates down, blurring job boundaries, and leaving many practitioners feeling squeezed, undervalued, and uncertain about their futures. The study intends to dive into the middle of that tension. It is not simply about whether machines can translate or not, or even about how accurate they can do so; it is about what becomes of human translators when customers begin to view AI output as the new baseline; it is about the total replacement of human with AI in the minds of clients; it is about abandoning human translators for the sake of AI. Using political economy and labor theory, we did our best to investigate how translation is evolving from a craft into a commodified gig mediated by algorithms and platform logic. To ground this study, we have brought together scholarly work on AI and creative labor, industry data—from sources like Common Sense Advisory (CSA) Research and Slator—and, very importantly, the voices of translators themselves, gathered from websites like ProZ.com and assertions made by associations like the International Federation of Translators (FIT) and American Translators Association (ATA). Those who work in high-stakes fields like law, medicine, or literature may still command fair pay and push back against AI-driven expectations. However, for most people, particularly those handling daily commercial or generalist content, the pressure is relentless. Thanks to DeepL, Google translate and availability of AI websites, translation clients are increasingly assuming that translation ought to be quick, near-zero-cost or 'free'. Meanwhile, translators are asked to post-edit, improve, or polish machine output for half the amount (or even less) they once earned for translating the original work—interestingly, often under tighter deadlines. Over the last ten decade (and especially over the last five years by the emergence of AI), real wages have flatlined or decreased even as the workload has increased. We also challenge the commonly made claim that AI is merely a 'neural tool'. In reality, it usually serves more like a manager: setting invisible standards and masking the fact that human judgment is still vital for anything beyond the most basic tasks. This economic devaluation is worsened by a lack of collective bargaining power, the globalized nature of the labor market and near-total lack of regulations on how AI is allowed to utilize human-generated data to train itself. The paper concludes with a call to action—not to reject technology, but rather to strive for a future where translators are not paid out of their own profession. That calls for wiser policy interventions, more powerful unions, and a strategic move towards the distinctively human skills AI cannot replicate: cultural insight, ethical judgment and creative adaptation. Without these, the economic sustainability of the translation profession—and the cultural diversity it safeguards—is at significant risk in the AI era.

Keywords: economy, translation profession, artificial intelligence, translation studies

THE EFFECTS OF DIGITAL FATIGUE ON THE JOB PERFORMANCE OF ACCOUNTING PROFESSIONALS

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ABSTRACT

Introduction and Purpose: This study aims to examine the impact of intensive digital tool usage on individual job performance among accounting professionals in Türkiye, focusing on the concept of digital fatigue. Accountants are continuously exposed to digital tools due to online connectivity, high data flow, and electronic documentation and client communication. Such exposure increases cognitive load, reduces attention spans, and lowers motivation. Previous research indicates that digital fatigue is associated with decreased performance and reduced psychological well-being among knowledge workers. The purpose of this study is to quantitatively test the effects of digital fatigue on individual performance in the context of accounting professionals and to provide organizational recommendations based on the findings.

Materials and Methods: A quantitative research design was employed. Data were collected through an online survey from 110 accountants working in various provinces in Türkiye who voluntarily participated. Measurement instruments included the Digital Fatigue Scale, assessing multidimensional fatigue related to screen and digital tool usage, and the Individual Work Performance Scale, measuring employees' task performance. Analyses included descriptive statistics, Pearson correlations, and multiple regression models. Additionally, the relative predictive effects of digital fatigue subdimensions (cognitive, emotional, behavioural, physical) on task performance were compared. Control variables included age, professional experience, and weekly working hours.

Results: The results indicate a significant negative relationship between overall digital fatigue scores and individual task performance levels. Cognitive and emotional subdimensions showed the strongest associations with performance decline, while behavioural and physical subdimensions provided additional explanatory contributions. Multiple regression results confirmed that digital fatigue remained a significant predictor even when control variables were considered. These findings suggest that in data- and screen-intensive professions such as accounting, digital exposure negatively affects employees' cognitive capacity and sustainable performance. Practical recommendations include implementing digital breaks, limiting screen time, managing workload, and providing digital awareness training.

Key Words: Digital Fatigue, Accountants, Employee Performance

PEROVSKITE COMPOSITE SOLAR CELLS: AN EFFICIENT, HIGHLY STABLE, NEXT GENERATION ENERGY MATERIALS

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Abstract

The rapid growth in the photovoltaic technology sector has made the perovskite solar cells (PSCs) a leading candidate for next generation energy production with their stupendous power conversion efficiency (PCE) and low cost manufacturing. Still, the long life issue of PSCs is mainly caused by the stability problems when they are subjected to environmental factors like heat, moisture, and light. In an effort to overcome these hurdles, other researchers have come up with a new class of PSC based composites, which not only increase durability but also improve the performance. This review summarizes the major developments in the PSCs, pointing out the critical drawbacks and the approaches taken to resolve them. Particular focus is given to conducting polymer based perovskite solar cell (CPPSC) composites, which have been tested as significant in bettering charge transport, stability, and efficiency. It also contributes to the reduction of different fabrication techniques used to improve the structural and electrical properties of the PSCs. The review goes further to consider the latest CPPSCs trends and the future scenarios of their application for solar energy by way of large scale, stable, and low cost methods. In essence, this synopsis highlights that combination of conducting polymers with perovskite materials is a feasible route to the development of high output, long-lasting and commercially acceptable solar cells.

Keywords: Perovskite; Solar cells; Composite; Conducting polymers.

COMMERCIAL ACTIVITIES IN COCHINCHINA BEFORE THE ESTABLISHMENT OF FRENCH COLONIAL RULE (1858-1862)

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Abstract

Before the establishment of French Colonial rule (prior to 1862), Cochinchina had already developed a dynamic and distinctive commercial system that reflected the characteristics of Vietnam's pre-colonial economy. Benefiting from favorable natural conditions in the Mekong Delta, with its dense network of rivers, canals, and interconnected markets and ports, the region became a vibrant riverine trading center where commercial exchanges were increasingly specialized and well-organized.

Domestic trade flourished through floating markets, boat trading, and periodic fairs, with Chinese, Vietnamese, and Cham merchants serving as intermediaries linking agricultural production with consumption markets. Foreign trade also developed early, maintaining regular commercial relations with China, Siam, Singapore, and Batavia. Major ports such as Saigon, My Tho, and Vinh Long functioned as key hubs for exports and imports. Exported goods were primarily agricultural products and handicrafts, while imported items consisted of luxury goods, industrial products, and metalware. The coexistence of diverse currencies—including Nguyen dynasty coins, silver bullion, Spanish dollars, and Chinese cash—illustrated the region's integration into regional markets and the adaptability of local merchants within a non-standardized financial system.

The study employs historical and logical methods to reconstruct the evolution of Cochinchina's commercial activities and to analyze the socio-economic factors shaping local trade networks. Supplementary methods such as comparison, qualitative analysis, and historical statistics are also applied to ensure objectivity and scholarly rigor. The findings contribute to a deeper understanding of Cochinchina's transition from a traditional economy to a colonial one, highlighting its significant role in the early integration of southern Vietnam into the capitalist world trade system of the nineteenth century.

Keywords: Cochinchina, traditional trade, foreign commerce, currency.

ECO-FUNCTIONAL VALORIZATION OF SILK COCOON WASTE USING BIXA ORELLANA NATURAL DYE: A SUSTAINABLE APPROACH TO COLOURATION AND BIOACTIVE TEXTILE DEVELOPMENT

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ABSTRACT

Introduction and Purpose: This study explores the functional performance of Bixa orellana (Annatto)-dyed silk cocoon waste substrates, focusing on their colour fastness, antimicrobial, and antifungal properties. The primary objective is to assess how different dye extraction media (aqueous and methanolic) and mordanting treatments influence dye adsorption, fixation efficiency, and biological activity. The work aims to establish a sustainable approach for converting silk waste into high-value, bioactive textile materials.

Materials and Methods: Silk cocoon waste fibres were dyed using aqueous and methanolic extracts of Bixa orellana, under both mordanted and unmordanted conditions. Colour fastness tests were performed for washing, rubbing, and perspiration. Antimicrobial and antifungal activities were evaluated using standard inhibition zone assays against selected bacterial and fungal strains. Two-way ANOVA was used to analyze the influence of mordanting and extraction medium on bioactivity. Morphological characterization was carried out using Scanning Electron Microscopy (SEM) to assess surface uniformity and dye–fibre interaction.

Results: Mordanted samples demonstrated significantly higher resistance to washing, rubbing, and perspiration compared to unmordanted ones. The aqueous-mordanted specimen (T2) achieved the best fastness ratings (washing: 5; dry rubbing: 5; wet rubbing: 4–5; perspiration—acidic: 5; alkaline: 5). Aqueous-mordanted samples also produced the largest inhibition zones against bacterial strains and strong antifungal activity against Aspergillus niger, confirming the retention of bioactive phytochemicals within the fibre matrix. Statistical analysis revealed mordanting as the primary influencing factor on antimicrobial efficiency, with extraction medium showing a secondary but significant effect. SEM analysis confirmed uniform dye deposition and minimal surface damage.

Discussion and Conclusion: The study confirms that Bixa orellana serves as an effective natural dye for silk cocoon waste, offering durable coloration and enhanced bioactivity. The combination of aqueous extraction and mordanting optimizes both colour performance and antimicrobial potential. This eco-friendly and sustainable dyeing approach not only valorizes silk waste but also supports the development of multifunctional textile materials with added health and environmental benefits.

Key Words: Bixa orellana; Annatto; Silk cocoon waste; Natural dye; Mordanting; Aqueous extraction; Methanolic extraction; Colour fastness; Antimicrobial activity; Antifungal activity; Sustainable textiles; Bioactive materials; SEM characterization; Eco-dyeing; Circular textile valorization

ECONOMIC DIMENSIONS OF EQUAL OPPORTUNITIES: TH EROLE AND CHAALLANGE OF WOMEN IN THE LABOUR MARKET

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ABSTRACT

Introduction and Purpose: The issue of equal opportunities in 21st-century economic and social discourse goes beyond the moral dimension of gender equality and has become one of the key factors of economic efficiency. The aim of this study is to demonstrate that equal opportunities are not merely a "women's issue," but a fundamental prerequisite for the sustainable functioning of the labour market and for economic growth. Increasing women's participation in the labour market has been proven to contribute to GDP growth and to the expansion of innovation capacities (OECD, 2021; World Economic Forum, 2023).

Materials and Methods: The research addresses the economic consequences of the gender pay gap, the glass-ceiling phenomenon, and the unequal distribution of caregiving responsibilities. It also presents the effects of European and national equal-opportunity strategies. Although studies highlight that achieving gender equality is not only a cost for companies and national economies, but a long-term investment that improves productivity, decision-making diversity, and social cohesion (EIGE, 2022), unfortunately in everyday practice we do not see significant progress or advancement.

Discussion and Conclusion: The study concludes that ensuring equal opportunities should be an integral element of future economic policy strategies, with particular emphasis on improving women's labour-market situation and removing the obstacles they face.

Key Words: gender equality, salary, opportunities at workplace, labour market

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EFFECT OF THE BORON OIL SEPARATION SYSTEM ON WATER AND OIL CONSUMPTION

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ABSTRACT

This study addresses system improvements implemented for the separation of boron oil used in CNC and transfer machines. The boron oil employed in 16 CNC and 11 transfer machines within the machining center becomes contaminated with chips during processing and quickly becomes unusable. In the current situation, a 100 m³ mixture of water and boron oil (95 m³ water, 5 m³ boron oil) prepared weekly is disposed of after use. This leads to both high consumption costs and environmental unsustainability.

With the commissioning of the boron oil separation system developed within the scope of the project, 90% of the waste mixture is recovered for reuse. With the new system, only 9,5 m³ of water and 0,5 m³ of boron oil need to be added weekly, and the mixture is completely renewed every three months. As a result of the improvement, a significant reduction in annual resource consumption has been achieved.

Currently, annual consumption amounts to 4,940 m³ of water and 260 m³ of boron oil, while with the new system, these figures are reduced to 874 m³ of water and 46 m³ of boron oil, respectively. Thus, an annual water saving of 17.6% has been achieved. Consequently, the investment in the boron oil separation system has resulted in a 63% reduction in water and boron oil consumption costs.

This improvement not only enhances efficiency in production processes but also provides substantial gains in environmental sustainability, supporting a transformation aligned with the European Union's Green Deal and Net Zero objectives. Annual water consumption, boron oil consumption, and waste disposal costs have been reduced from 10,000 TL to 6,360 TL.

Keywords: Environmental sustainability, Metalworking fluids, Waste management

EFFECTS OF ORGANIC MANURES AND CHEMICAL NPK FERTILIZERS ON RED AMARANTH (*AMARANTHUS TRICOLOR L.*) IN SANDY LOAM CONDITIONS

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Abstract

A field experiment was conducted from September to December 2024 in Mirsharai Upazila, Chattogram to evaluate the effects of different organic manures and chemical NPK fertilizers on the growth and yield performance of red amaranth (Amaranthus tricolor L., cv. Lalmia, Lalsak) under sandy loam soil conditions. The experiment followed a Randomized Complete Block Design with eight treatments and three replications: T0 (control), T1 (NPK: 166 kg/ha urea, 90 kg/ha TSP, 60 kg/ha MoP), T2 (cow dung: 8 t/ha), T3 (cow dung + NPK), T4 (vermicompost: 4 t/ha), T5 (vermicompost + NPK), T6 (farmyard manure: 8 t/ha), and T7 (farmyard manure + NPK). Seeds were sown by broadcasting at 1 kg ha^{-1}. Data were recorded on plant height, number of leaves, largest leaf length, stem length, fresh weight, and final yield at 15, 25, 35, and 40 days after sowing (DAS). Results revealed that integrated nutrient management treatments, especially T5 (vermicompost + NPK), significantly enhanced all growth parameters and yield. At 40 DAS, T5 recorded the highest plant height (28 cm), leaf number (8.2), leaf length (8.0 cm), stem length (20 cm), and fresh weight (16.9 g). The maximum yield was also recorded in T5 (3.5 kg/plot; 14.58 t/ha), followed by T7 and T3. In contrast, the control (T0) consistently showed the lowest performance across all parameters, with a yield of only 2.8 kg/plot (11.67 t/ha). The study confirms that the combined application of organic manures and inorganic fertilizers, particularly vermicompost with NPK, offers a synergistic effect by enhancing nutrient availability, improving soil structure, and promoting vigorous vegetative growth and yield. These results suggest that integrated nutrient management is a viable strategy for sustainable red amaranth production in nutrient-deficient and food security in coastal sandy loam soils.

Keywords: Red amaranth, Integrated nutrient management, Vermicompost, NPK fertilizer.

AN EMERGING PARADIGM: EDUCATIONAL NEUROSCIENCE

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ABSTRACT

Education is a dynamic discipline that draws on data from various scientific fields (Taşkıner vd., 2021). Significant progress has been made in the field of medicine with the development of technological infrastructure. Since the dawn of time, humankind has been trying to understand the structure of the mind and neurobiological processes. One of these is the concept of educational neuroscience, which we often hear about. Educational neuroscience, as an interdisciplinary field that seeks to understand the neurobiological foundations of learning processes, plays an important role in shaping teachers' pedagogical decisions. Mutlu and Aydın (2017), while explaining the cognitive functioning of individuals with learning difficulties, particularly in mathematics, emphasize that neuroscience-based approaches can be effective in overcoming such difficulties. Koyuncu (2017) states that when educators integrate neuroscientific findings into classroom practices, students' levels of attention, motivation, and conceptual understanding increase.

The main objective of this study is to examine the concepts of neuroscience and educational neuroscience on a theoretical level based on the existing literature; to reveal the theoretical background of these concepts in relation to education, their scientific importance, and their reflections in educational processes from a holistic perspective; and to explain the concept of educational neuroscience based on studies in the literature regarding the importance of these concepts. In line with this objective, the study seeks to answer the research questions: What is neuroscience? What is educational neuroscience? What is the importance of educational neuroscience? This study, which is a literature review, explains topics such as the development of educational neuroscience, the definition of educational neuroscience, and why it is important in the education system. It is believed that this study will contribute to the literature.

Keywords: Educational neuroscience, Brain-based learning, Cognitive neuroscience, Mental processes, Educational Neuroscience Awareness

ELEFTHERIOS VENIZELOS' MISSION TO LAUSANNE

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ABSTRACT

Introduction and Purpose: As of July 2025, the Lausanne Peace Treaty marks its 102nd anniversary. The Lausanne Conference is significant not only for the political and legal issues it addressed, but also for the delegates who took part in the negotiations. In this context, Greece was represented by Eleftherios Venizelos whose policies had led Greece in to the "Asia Minor Catastrophe."

With Eleftherios Venizelos' rise to power in 1910, the terms Venizelism and Anti-Venizelism entered the country's political vocabulary, marking a lasting ideological and political cleavage within modern Greek history.

Guided, by the ideal of "Greece on two continents and five seas", Venizelos led his country into the First World War despite the opposition of nearly half of the Greek population. At the end of the war, he obtained Allied approval for the landing of Greek troops in İzmir. Despite this achievement, he lost the subsequent general elections and voluntarily went into exile in Paris.

The war that Venizelos initiated in Anatolia by landing Greek troops at İzmir was subsequently continued by King Constantine. Ultimately, with the Turkish victory at the Battle of Dumlupınar on 30 August 1922, the Greek army suffered a decisive defeat nemed "Asia Minor Disaster" was followed by a Venizelist revolutionary movement in Greece. Although Venizelos had been out of power since 1920 the leaders of this revolution appointed Venizelos as their representative to the Peace Conference at Lausanne.

Materials and Methods: Newspaper reports from the Venizelist and anti-Venizelist Greek press of the period have been examined regarding Venizelos's selection as a delegate.

Discussion and Conclusion: In Greece, parallel to political life, the press was also divided into Venizelist and anti-Venizelist camps. The approaches of these two groups of newspapers to Venizelos's mission in Lausanne likewise differed, turning them almost into a laboratory for understanding Greek society.

Key Words: Lausanne, Venizelos, Greek Press.

ENVIRONMENTAL CHANGES IN KULAURA: IMPACTS ON BIODIVERSITY, HUMAN WELL-BEING, AND SUSTAINABLE CONSERVATION PRACTICES

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Abstract

Kulaura, located in the Moulvibazar district of Sylhet Division, Bangladesh, has experienced significant environmental changes over the past five years, impacting its ecosystems, biodiversity, and local communities. The Hakaluki Haor, one of the largest wetlands in South Asia, plays a vital role in maintaining local agriculture, fisheries, and biodiversity. However, it faces ongoing threats from illegal sand mining, hill cutting, deforestation, and flooding, leading to habitat loss and a decline in species diversity. Positive environmental changes include conservation efforts such as tree planting initiatives and the implementation of the WASH project, which has provided safe drinking water and sanitation, particularly benefiting women and children. The project also aligns with the concept of hydro-feminism, recognizing the unequal burden water scarcity places on women in rural areas. Despite these positive efforts, challenges persist, such as the loss of migratory bird populations, the impact of climate-induced disasters. This research explores the interconnectedness of zoology, biology, and psychology to understand how these environmental changes affect both human and wildlife well-being. The paper advocates for the integration of biocentric approaches, recommending stricter enforcement of environmental laws, the expansion of sustainable water management programs, and the restoration of natural habitats. By balancing development with conservation, Kulaura can build a sustainable future that protects its unique biodiversity and supports its local communities.

Keywords: Environmental Change, Biodiversity, Kulaura, Hakaluki Haor, Hydro-Feminism, Zoology, Conservation, Biocentrism.

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EPIGENETICS AND BREASTFEEDING: THE PROGRAMMING EFFECTS OF BREAST MILK ON INFANT DEVELOPMENT

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ABSTRACT

This review explores the multifaceted role of breast milk not only as a nutritional source but also as a dynamic biological system capable of shaping long-term health outcomes through epigenetic mechanisms. The first 1,000 days of life constitute a critical window during which environmental inputs can leave lasting molecular imprints on the genome without altering the DNA sequence. Breast milk contains a diverse array of bioactive components, including microRNAs, growth factors, oligosaccharides, and immunological agents, which collectively influence key epigenetic processes such as DNA methylation, histone modifications, and non-coding RNA activity.

These processes support immune system maturation and provide protective effects against infectious diseases, obesity, type 2 diabetes, and cardiovascular conditions. Furthermore, accumulating evidence demonstrates that breastfeeding positively impacts neurodevelopment and cognitive performance by inducing epigenetic changes in genes associated with brain structure and intelligence.

Beyond its short-term benefits, breastfeeding emerges as a strategic public health investment with intergenerational implications. Promoting and supporting breastfeeding practices can significantly influence population health by reducing disease burden and improving developmental outcomes. In this context, the integration of epigenetic knowledge into clinical practice, particularly by nurses and allied health professionals, is essential for enhancing patient care quality. Nevertheless, further longitudinal and mechanistic research is warranted to fully elucidate the underlying epigenetic pathways and their long-term health consequences.

Key Words: Epigenetic Mechanisms; Breast Milk; Neurodevelopment.

LAUGHTER YOGA AS AN INNOVATIVE PRACTICE IN GYNECOLOGIC ONCOLOGY NURSING

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ABSTRACT

According to the Turkish Language Association, laughter is defined as “laughing aloud,” representing a universal expression of joy and a shared human behaviour across cultures. Due to its physiological and psychological effects, laughter has increasingly attracted scientific interest. Developed in 1995 by Indian physician Dr Madan Kataria, Laughter Yoga combines unconditional laughter exercises with yogic breathing techniques. As the brain does not distinguish between genuine and simulated laughter, diaphragmatic movements elicit real physiological responses in the body. Laughter Yoga adopts a holistic approach that supports biopsychosocial well-being. Its simplicity, low cost, ease of implementation, and independence from special equipment have contributed to its growing use as a complementary therapy. In recent years, this approach has gained prominence in nursing practice and, as of 2023, has been recognised as an independent nursing intervention within the Nursing Interventions Classification (NIC). Evidence from studies conducted with cancer patients suggests that Laughter Yoga significantly reduces anxiety and depression, enhances quality of life, and promotes psychological well-being. Furthermore, it strengthens social connections, improves self-confidence, and facilitates treatment adherence, thereby serving as a psychosocial intervention that empowers patients’ sense of control. Despite these promising outcomes, research focusing on its application among women with gynaecological cancers remains limited. Gynaecological cancers represent a major cause of morbidity and mortality in women, where early diagnosis, effective nursing care, and supportive interventions play a vital role in improving both survival and quality of life. Accordingly, this review aims to evaluate the applicability of Laughter Yoga as a complementary nursing intervention in women with gynaecological cancers, summarise the existing scientific evidence, and propose recommendations for its integration into nursing care.

Key Words: Laughter Yoga; Gynecologic Oncology; Nursing

ETHNOBOTANICAL STUDY OF *THYMUS MUNBYANUS* BOISS. & REUT. (LAMIACEAE) IN THE MOROCCAN MIDDLE ATLAS: THERAPEUTIC USES AND TRADITIONAL KNOWLEDGE

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Abstract

Thymus munbyanus Boiss. & Reut. has long been used in traditional medicine by the local populations of the Middle Atlas. To document the ethnobotanical knowledge related to its uses, treated ailments, modes of preparation, and local perceptions, an ethnobotanical survey was conducted in five stations within the study area in the Middle Atlas region of Morocco. The mountains of the study area are known for their rich floristic diversity and deep-rooted traditional knowledge of medicinal plants. The results revealed a strong coherence between traditional knowledge, preparation methods, and therapeutic uses of *Thymus munbyanus*, a species widely recognized for its medicinal value. The leaves were the most commonly used plant part, primarily for treating gastrointestinal and respiratory ailments. The Relative Frequency of Citation (RFC = 1) in our study is uniform across all stations, indicating a unanimous agreement among informants regarding the use of *Thymus munbyanus*. In contrast, the Use Values (UV) vary between localities, ranging from 1.15 to 1.59, reflecting a higher

intensity of use in certain areas. A clear correlation was observed between the type of use and the state of the plant. Overall, this study highlights the intimate connection between local cultural practices, ecological heritage, and the preservation of traditional medicinal knowledge within Moroccan mountain communities.

Keywords: Ethnobotany; Preservation; Traditional medicines; Plant uses; Moroccan mountains; RFC; UV

EVALUATION OF GRAYSCALE MEAN AS A TOOL WEAR INDICATOR: A FEED MARK-BASED APPROACH

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ABSTRACT

Introduction and Purpose: Real-time monitoring of tool wear in turning is important for process reliability and economics. Since turned-surface images carry wear traces, feature-based approaches derived from machined surface images have increased in recent years; in most studies, analyses were conducted on images containing multiple feed marks. This study investigated whether computing the previously used grayscale mean (G) feature over a single feed mark (instead of multiple marks) improves its performance in reflecting wear.

Materials and Methods: Cutting tests were performed at five different cutting speeds, and three additional experiments were conducted with varied feed rates. For each test, the G feature was computed from a single feed mark in each image. The temporal trend of G during cutting was modeled linearly versus time, and goodness-of-fit was quantified by the coefficient of determination (Adj. R^2). In addition, the dependence of wear on cutting speed was jointly modeled with a logarithmic term to assess the dynamic relationship.

Results: Across the five speed-series tests, using a single feed mark yielded a 17% increase in mean Adj. R^2 compared with the multi-mark computation. When the logarithmic trend with cutting speed was included, an additional 9.7% improvement in the dynamic fit was obtained. In the three experiments with varied feed rate, the mean Adj. R^2 increased by 111%.

Discussion and Conclusion: Computing G from a single feed mark was associated with a more consistent relation to the wear trend than the multi-mark approach. The joint log-speed modeling further strengthened this relation, indicating that the single-mark strategy can serve as a simple indicator for real-time tool-wear monitoring in turning.

Key Words: Tool Wear Monitoring, Image Processing, Grayscale Intensity, Feed Mark Analysis

EXPERIMENTAL INVESTIGATION OF AIRFLOW PERFORMANCE OF AXIAL AND RADIAL FANS WITH DIFFERENT HEATSINK GEOMETRIES FOR INDUCTION COOKTOPS

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ABSTRACT

Introduction and Purpose: In domestic induction cooktops, the reliability and lifetime of electronic components largely depend on effective thermal management. Therefore, the fan type used in the cooling system is a critical design parameter that directly affects the overall thermal performance of the system. Today, depending on cost and performance requirements, either axial or radial fans are commonly used in induction cooktops. In this study, a performance comparison of two different fan types was conducted for a newly developed cooktop platform. The main objective of the study is to experimentally investigate the airflow characteristics generated by different fan types when combined with two heatsinks having distinct fin geometries vertical and horizontal. For each fan–heatsink configuration, the air velocity at the heatsink outlet was measured and compared. The study aims to quantitatively evaluate the effect of fan type and heatsink geometry on airflow distribution and to provide an experimental foundation for future Computational Fluid Dynamics (CFD) analyses.

Materials and Methods: In this study, two types of fans and two heatsinks with different fin orientations were used in the experiments. One of the fans was axial, and the other was radial in structure. The heatsinks were categorized according to fin orientation as vertical-fin and horizontal-fin types. Each fan was powered by an external DC power supply under constant voltage to ensure a stable airflow independent of the product system. The experimental setup consisted of a heatsink aligned with the fan's flow direction and an anemometer sensor positioned at the heatsink outlet. Measurements were performed at predefined points across the outlet section of each heatsink. Each point was measured three times by two different operators, and the average values were calculated. This approach was adopted to assess the repeatability of the measurements and to minimize operator-dependent variation.

Results: According to the results, the radial fan produced higher average airflow velocities compared to the axial fan for both heatsink geometries. Measurements with the axial fan showed that the airflow tended to concentrate near the central region, while the velocity decreased toward the outer zones. This observation reflects the geometric limitation of the axial fan's flow-direction capability.

Key Words: Induction Hob; Axial Fan; Radial Fan; Airflow Measurement; Heatsink

INVESTIGATION OF THE EFFECTS OF LYCOPENE ON METABOLISM AND HEALTH

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ABSTRACT

Lycopene is a bright red, natural pigment belonging to the carotenoid family, an acyclic terpenoid structure containing 11 conjugated and two unconjugated double bonds. It is found in high concentrations, primarily in Solanum lycopersicum (tomato) and tomato-based processed products. Biosynthesized in plants during photosynthesis, lycopene is commercially available through natural extraction or chemical synthesis. Due to its lipophilic nature at the molecular level, the presence of dietary fats significantly increases lycopene's bioavailability in the small intestine by supporting micelle formation necessary for absorption.

It is widely used as a colorant and functional ingredient in food, beverage, and animal feed formulations. Lycopene is among the most potent singlet oxygen quenching carotenoids, suggesting that it plays a critical role in reducing peroxidative damage to cellular macromolecules (DNA, proteins, and lipids) caused by oxidative stress and in neutralizing reactive oxygen species (ROS). It is emphasized that the bioavailability of lycopene varies depending on the source processing method (isomerization), the matrix, and individual metabolic variations, and that these factors should be taken into account when evaluating lycopene's in vivo health effects. Both clinical and experimental studies in recent years have demonstrated that lycopene exhibits various biological activities and may offer potential benefits in preventing the etiology and improving the course of various chronic diseases. In this context, lycopene is reported to have protective effects against cardiovascular protection against hyperlipidemia, diabetes, some types of cancer, skin aging, osteoporosis, and neurodegenerative disorders. Furthermore, the scientific literature highlights its anti-inflammatory, apoptosis-inducing, anti-proliferative, and immunomodulatory properties, which modulate inflammatory mediators such as cyclooxygenase (COX) and lipoxygenase (LOX). In particular, lycopene has remarkable potential in cancer biology thanks to its mechanisms such as improving gap junctions and promoting apoptosis (programmed cell death).

In conclusion, lycopene: Thanks to its unique lipophilic structure, superior antioxidant capacity, and multiple biological activity mechanisms, including modulation of signaling pathways at the epigenetic level, lycopene is an essential component of modern nutrition and health strategies. This comprehensive review is expected to contribute significantly to an in-depth understanding of lycopene metabolism and molecular mechanisms of action, thereby contributing to the development of new therapeutic and preventive health approaches.

Keywords: Lycopene, Metabolism, Bioavailability, Antioxidant Capacity, Carotenoid, Chronic Diseases, Therapeutic Potential.

EXAMINING THE ROLE OF NUTRITION IN THE TREATMENT OF THYROID DISEASE

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ABSTRACT
Thyroid gland disorders are one of the most common endocrine system dysfunctions today and significantly affect public health. The thyroid gland, located in the front of the neck, is a primary endocrine organ that secretes the hormones thyroxine (T4) and triiodothyronine (T3), which are the primary regulators of metabolism and growth processes and play a critical role in regulating energy metabolism, growth, development, and body temperature. Overproduction of thyroid hormones leads to hyperthyroidism, while underproduction leads to hypothyroidism. Hyperthyroidism manifests with symptoms such as rapid heartbeat (tachycardia), weight loss, irritability, excessive sweating, and hand tremors; the most common cause is Graves' disease, an autoimmune disease. In this condition, patients often experience weight loss despite increased appetite due to an accelerated metabolism (hypermetabolic state). On the other hand, hypothyroidism is often associated with a slowed metabolism and is characterized by fatigue, depression, constipation, weight gain, cold intolerance, and dry skin. Adequate intake of micronutrients such as iodine, selenium, and zinc is critical for maintaining healthy thyroid function and hormone synthesis. Selenium, in particular, is a nutrient that helps neutralize the inactive thyroid hormone. It serves as a cofactor for deiodinase enzymes, which are responsible for the conversion of thyroid to its more biologically active form. Furthermore, adequate selenium and zinc status are crucial in autoimmune pathologies such as Hashimoto's thyroiditis and Graves' disease due to their antioxidant and immunomodulatory roles. Goiter, defined as an enlargement of the thyroid gland, is a common condition encountered in endocrinology. While iodine deficiency is considered the most common cause of goiter worldwide, excessive consumption of goitrogenic substances found in certain foods such as broccoli, cabbage, and cauliflower can also contribute to goiter formation, especially in the setting of iodine deficiency. Impaired thyroid function not only affects metabolic processes but also increases the long-term risk of thyroid cancer. While surgery remains the primary treatment for thyroid cancer, medical nutrition therapy plays an important supporting role in the recovery process.
In conclusion, given the prevalence of thyroid gland disorders and their profound impact on metabolic processes, a multidisciplinary approach to diagnosis and treatment is vital. In particular, personalized medical nutrition therapy approaches aimed at optimal intake of micronutrients that support thyroid function are crucial. Its development and implementation are expected to provide significant benefits in both reducing the incidence of diseases and improving the quality of life and clinical outcomes of treated patients.
Keywords: Thyroid Gland Disorders, Iodine, Hypothyroidism, Hyperthyroidism, Endocrine System, Metabolism, Medical Nutrition Therapy.

EXPLORING CELLULOSE RECOVERY FROM CAULIFLOWER DISCARDS

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ABSTRACT

Agricultural and industrial wastes are among the major causes of environmental pollution. Their conversion to useful products may ameliorate the problems they cause.In the presented study, Cauliflower stem and stem leaves commonly discarded as waste materials were used for the extraction of cellulose followed by paper making as one of the applications. For the extraction of cellulose, the Acid Alkaline hydrolysis method was explored. The waste is composed of both stems and leaves, so 3 distinct batches were employed for extraction, a-only stem as source, b-only leaves, and c-entire waste including both; in order to evaluate which part of the discard contained the highest amount of cellulose. Regardless of the results, the study proceeded with batch c, as we aimed at the utilization of the entire waste. The extracted cellulose fibers were then subjected to various evaluation parameters such as microscopical analysis and chemical analysis including sulfuric acid test, vanillin test, ninhydrin test, biuret test, iodine test, Molisch test, benedict test, and Fehling test. Further, the study headed with the preparation of paper from obtained fibers, one among many applications of cellulose. Finally, the obtained paper was characterized by various tests, GSM test, pH test, thickness test, bulk test, moisture test, folding endurance and, tensile strength. There are other applications as well of extracted cellulose such as biofuel production, as film-forming agent, as thickener, as blocker, sustained release agent, blending agent, and suspending agent, ensuring discrete pharmaceutical preparations, and many more. the treatment of conditions such as fever, common cold, diabetes, and rheumatoid arthritis.

Keywords: Cauliflower waste, Cellulose extraction, Waste utilization, Cellulose evaluation, Paper making and Cellulose applications.

HERBAL IMMUNOMODULATORS: A NATURAL STRATEGY FOR IMMUNE SYSTEM REGULATION

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ABSTRACT

Ayurveda is an ancient Indian medical practice that focuses on preventing illness through a holistic approach. It emphasizes daily health habits that are in tune with individual and seasonal biorhythms. This differs from modern medicine, which relies on activating the body's defense mechanisms using microbial preparations for immunization. There is growing interest in natural compounds that can influence immune responses, called immunomodulators. These can either stimulate or suppress immune functions. The immune system has two main responses: the innate response, which is quick and non-specific, and the adaptive response, which is slower but very specific. Immunomodulators are important for managing various diseases by either boosting or inhibiting immune responses. This makes them vital in clinical settings such as autoimmune disorders, cancer immunotherapy, and organ transplantation. Natural immunomodulators, sourced from plants, are becoming more popular due to their potential benefits and fewer side effects compared to synthetic options. This abstract discusses the categories of immunomodulators, their clinical uses, and their role in regulating the immune system. It also highlights the importance of traditional medicinal plants in modern health practices.

Keywords: Herbal Drugs; Ayurveda; Immunomodulatory; Diseases.

BIOCHAR AND NANOSILICIUM COMBINATION IN IRRIGATION WATER SALINITY

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ABSTRACT

Increasing freshwater stress has necessitated the use of saline water, an alternative water source in agriculture, for irrigation. However, saline irrigation negatively impacts the physical, physiological, chemical, and morphological characteristics of plants experiencing abiotic stress. Therefore, these characteristics need to be improved when irrigated with saline water. This healing effect can be provided by silicium, which is the most abundant element in the soil but is not an absolutely essential element, and biochar, which is an organic thermochemical transformation product, as confirmed by a study on this subject. However, no study has been found in the literature in which this element was used as a nanoparticle against salt water stress and in which the development of pepper plants was investigated by evaluating this element and organic matter together. Thus, this study addressed the research questions of whether the combined use of biochar and nanosilicium against irrigation water salinity stress would improve the physical and physiological properties of pepper plants and examined the hypothesis that this combined use would ameliorate the negative effects of irrigation water stress on pepper plants. As a result, it was determined that all physical and physiological parameters of pepper plants were negatively affected when irrigated with 5 dS m^{-1} irrigation water salinity, but this negative effect was ameliorated by the combined use of 2% biochar and 200 ppm nanosilicium. Thus, it was found that it is advisable to use 2% biochar and 200 ppm nanosilicium in the irrigation of pepper with 5 dS m^{-1} irrigation water salinity to reduce the pressure on freshwater resources, but it was also found advisable to investigate different plants and different biochar and nanosilicium doses in field conditions.

Keywords: Biochar, Irrigation, Nanosilicium, Salinity, Yield.

PHYSICAL PROPERTIES OF *CAPSICUM ANNUUM* IN THE INTERACTION OF DIFFERENT RATES OF BIOCHAR + NANO FERTILIZER IN VARYING LEVELS OF IRRIGATION TREATMENTS

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ABSTRACT

Water stress, which affects all life stages, significantly impacts the agricultural sector, which accounts for the largest water consumption, and therefore food production. Therefore, while deficit irrigation, based on the principle of providing less irrigation water without fully meeting the plants' water needs, is a widely accepted approach, deficit irrigation weakens all plant physical characteristics and causes growth retardation. For this reason, the number of studies on practical treatments to improve yield in deficit irrigation is increasing day by day. Among these treatments, interest has increased in biochar, which is produced as a result of thermal decomposition of biomass through pyrolysis with limited oxygen, and in nano fertilizers produced as a result of nano technologies, which have recently increased their effectiveness. However, studies have focused on their individual effects; no studies on their combined use have been found in the literature. Therefore, this study fills this gap in the literature and provides a foundation for further studies. In this context, the study, designed as a randomized plot design with 3 replications, investigated the fresh and dry weights of roots and shoots, number of leaves and fruits, fruit weight, fruit and plant height and stem diameter of Capsicum annuum in the interaction of 9 different rates of biochar + nano fertilizer silicon in 3 varying levels of irrigation treatments. Ultimately, all these physical traits decreased with decreasing irrigation water levels, but all traits except the number of fruits, increased with the biochar+nano fertilizer silicon interaction. The data were found to be recommendable because they showed that the interaction of biochar + nano fertilizer silicon was important in improving the physical properties that decreased under water stress, especially at the dose of 2% biochar and 150 ppm nano fertilizer silicon but conducting more comprehensive studies was among the important results of the study.

Keywords: Biochar, Deficit Irrigation, Nano fertilizer, Pepper, Silicon.

GEOPOLITICAL RISK AND BANKING PERFORMANCE: EVIDENCE FROM DEVELOPING ECONOMIES

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ABSTRACT

The existing literature addresses geopolitical risks as one of the conspicuous sources of uncertainty in the international financial system. In this sense, developing economies are particularly more vulnerable to geopolitical risks because of the weak institutional framework, small financial structures, and overall high dependence on external funding. These risks can undermine investor confidence, elevate risk premiums, and disrupt banking operations, thereby threatening financial stability and economic resilience. Despite the growing relevance of geopolitical uncertainty, existing studies tend to assess its effects in a fragmented manner, often focusing on isolated indicators such as credit growth or bank stability. Therefore, this study aims to empirically examine the comprehensive impact of geopolitical risk on banking performance in developing countries. Using panel data from 12 developing economies over the period 2012–2021, the analysis employs the Driscoll and Kraay estimator fixed effects estimator. The findings reveal that a one-unit increase in the geopolitical risk results in an approximate 0.71-point decline in bank profitability, indicating that geopolitical shocks significantly weaken banking performance. These results highlight the critical need for macroprudential policies that strengthen capital adequacy and risk management in banks, alongside diplomatic and institutional measures to mitigate the financial consequences of geopolitical disruptions.

Keywords: Geopolitical Risks; Banking Performance; Developing Economies; Panel Data Analysis; Financial Stability.

GLEEVEC INDUCES CELL CYCLE ARREST AND REDUCES PROLIFERATION IN 3D ENDOMETRIAL CANCER SPHEROIDS

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Abstract

The aim of this study was to assess the antiproliferative effects of Gleevec (Imatinib) on endometrial cancer spheroids using a 3D cell culture model. Ishikawa-derived spheroids were treated with 50 µM Gleevec for 96 hours. Cell proliferation was evaluated via BrdU immunostaining, while flow cytometry analyses were performed to assess cell cycle distribution (PI staining) and apoptosis (Annexin V-FITC/PI).

Gleevec treatment significantly decreased the proportion of BrdU-positive cells at all timepoints ($p < 0.0001$), indicating suppressed DNA synthesis and proliferation. Flow cytometry revealed a dose-dependent increase in G1+G0 phase cells and a marked reduction in S-phase cells, consistent with G1 phase arrest. Additionally, apoptotic cell fractions (UL and LR quadrants) were slightly elevated but did not indicate substantial cytotoxicity.

These findings suggest that Gleevec induces a predominantly cytostatic effect in endometrial cancer spheroids, halting cell cycle progression and reducing proliferation without causing massive apoptosis. The study supports the potential of tyrosine kinase inhibitors as low-toxicity candidates for targeted therapy in endometrial cancer.

Keywords: Endometrial cancer, Gleevec, 3D spheroids, cell cycle arrest, BrdU

REGENERATIVE APPROACH TO DEVELOPING A STEM CELL BASED ARTIFICIAL PANCREAS FOR TYPE 1-DIABETES

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Abstract

Type 1 diabetes mellitus (T1DM) is a chronic autoimmune disorder characterized by the destruction of pancreatic β-cells, leading to absolute insulin deficiency and impaired glucose regulation. Despite being life-sustaining, conventional insulin therapy is unable to mimic the dynamic physiological insulin secretion of a healthy pancreas. The development of a functional artificial pancreas that can reinstate endogenous insulin production has been made possible by recent advances in stem cell biotechnology and regenerative medicine. This study focuses on regenerative strategy that combines bioengineering and immunoprotective encapsulation technologies with pancreatic β-like cells produced from pluripotent stem cells. In order to produce mature insulin-producing cells, human induced pluripotent stem cells (hiPSCs) were differentiated by gradually modulating three important transcription factors: PDX1, NGN3, and MAFA. A biocompatible hydrogel scaffold was used to implant the modified β-cell clusters in order to increase nutrition transport, vascularization, and immunological isolation, while macro-encapsulation devices with gene-edited hypo-immune β-cells reduced auto- and allo-immune attack. According to recent research, autologous chemically generated pluripotent stem-cell islets achieved insulin independence and HbA1c $\leq$ 5.7% in a patient with long-term T1DM, confirming scalable production of highly functional SC-islets and emerging first-in-human success. This integrated regenerative platform addresses three major hurdles: donor scarcity, immune rejection, and β-cell survival post-transplantation.. This work establishes the groundwork for a long-term and effective treatment for type 1 diabetes by combining stem cell biology and tissue engineering. Prospects for the future include improving cell differentiation efficiency, refining scaffold architecture, and moving closer to clinical-grade artificial pancreas prototypes. This pioneering research underscores the potential of regenerative medicine to redefine diabetes treatment and achieve functional pancreatic restoration for improved global health outcomes.

Keywords: Type 1 Diabetes Mellitus (T1DM), Pancreatic β-like Cells, Regenerative Medicine, Immunoprotective Encapsulation, Human Induced Pluripotent Stem Cells (hiPSCs).

THE IMPACT OF CLIMATE CHANGE ON WOMEN'S HEALTH AND NURSING APPROACHES

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ABSTRACT

Introduction and Purpose: Climate change is a major global public health problem that affects not only the environment but also human health in many ways. Women are more vulnerable to its negative effects due to biological, social, and economic factors. These effects influence various aspects of health, including reproductive and mental health, infectious diseases, and socioeconomic well-being. Nurses, as key members of the healthcare team, play a vital role in protecting and promoting women's health in this context. This review aims to examine the effects of climate change on women's health and to describe related nursing approaches based on national and international literature.

Materials and Methods: A literature search was conducted in international databases (PubMed, ScienceDirect, Cochrane) and national databases (Google Scholar, TR Dizin) for studies published in the last ten years. The keywords used were "climate change," "women's health," and "nursing." This review is descriptive and includes no experimental data.

Results: The impacts of climate change on women's health are multidimensional. From a reproductive health perspective, high temperatures and extreme weather events have been associated with preterm birth, low birth weight, and stillbirth. Climate change also increases the risk of infectious diseases such as malaria, dengue fever, and Zika virus, which are particularly dangerous during pregnancy. In terms of mental health, exposure to disasters and environmental stress can lead to depression, anxiety, and post-traumatic stress symptoms. Addressing these issues requires policies that integrate a gender perspective and prioritize women's specific health needs.

Discussion and Conclusion: Women's health nurses have an important role in strengthening women's resilience and adaptation to climate change. Nursing interventions include disaster preparedness education, psychosocial support, ensuring access to safe maternity and reproductive care, and promoting environmental health awareness. Community-based nursing practices—such as monitoring vulnerable groups, maintaining prenatal and postnatal care during disasters, and providing counseling on healthy and sustainable behaviors—are key to protecting and improving women's health in the era of climate change.

Key Words: Climate Change; Women's Health; Nursing

ADAPTIVE STRATEGIES AND LIVELIHOOD RESILIENCE IN THE COASTAL COMMUNITIES OF BANGLADESH

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Abstract:

Bangladesh is globally recognized as one of the most climate-vulnerable countries, with coastal regions increasingly threatened by sea-level rise, salinity intrusion, waterlogging, and recurrent cyclones. This study investigates the adaptive strategies and livelihood resilience of agriculture- and fisheries-based communities in Southkhali Union of Sharankhola Upazila, a climate-sensitive coastal area. Using a mixed-method approach, data were collected through a household survey of 325 respondents selected via stratified random sampling, complemented by focus group discussions (FGDs) involving 8–10 participants from each livelihood group. Quantitative findings were supported by qualitative insights to understand both structural and behavioral adaptation mechanisms. This finding that 71% of agricultural households adopted saline-tolerant rice varieties, 65% cultivated short-duration paddy, and 58% grew rabi crops to cope with salinity and waterlogging. In contrast, only 34% of the fishing community reported using safety measures such as life jackets and fiber boats, and 28% used mobile phones for weather updates. Overall, 63% of agricultural respondents and only 29% of fishers reported being confident in their ability to cope with climate hazards. Limited access to financial resources, institutional support, and social networks were identified as major constraints for both groups. Qualitative findings further highlighted barriers such as inadequate extension services, weak infrastructure, and socio-cultural limitations that reduce community resilience. The study concludes that enhancing livelihood resilience in coastal Bangladesh requires targeted policy interventions, improved access to adaptive resources, and community-based support systems. Strengthening institutional support and collaborative planning is essential to ensure sustainable adaptation and protect vulnerable livelihoods.

Keywords: Climate Change, Adaptation Strategies, Coastal Communities, Salinity, Agriculture, Fisheries, Livelihood Resilience.

EXPLORING THE SOCIAL STATUS OF THE HIJRA COMMUNITY: AN EVIDENCE-BASED STUDY

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Abstract

This study examines the social status of the Hijra (transgender) community in Bangladesh through an evidence-based assessment of their educational, economic, cultural, and health conditions. Despite official recognition as a third gender in 2013, the Hijra community continues to experience widespread exclusion from mainstream society and limited access to basic rights and opportunities. The research was conducted in the Hijra Para of Khulna City, employing exploratory and descriptive methods. Data were gathered through a structured questionnaire survey among 119 respondents, purposively selected from a population of approximately 500, based on Godden's formula. Supplementary qualitative data were used to better understand the lived realities of the respondents. This finding that 79% of participants faced discrimination in education and employment, and 83% experienced verbal or physical harassment in public spaces. Around 72% depended on begging or sex work as their primary livelihood, while 68% lacked access to formal healthcare. Mental health challenges were significant, with 61% reporting depression symptoms and 24% admitting at least one suicide attempt. Furthermore, 87% of respondents felt that social acceptance of the Hijra community remains minimal despite government recognition. The study concludes that the Hijra community's marginalization is rooted in deep-seated social stigma, economic exclusion, and policy neglect. Addressing these issues requires targeted government action, inclusive social policies, and public awareness to promote equality, human dignity, and sustainable livelihood opportunities for the Hijra population in Bangladesh.

Keywords: Hijra, Gender Identity, Human Rights, Social Exclusion, Discrimination, Economic Empowerment.

IMPROVEMENT OF THE COMPRESSIBILITY OF SOIL IN ALGERIA'S SEBKHA BY ELECTROKINETIC TREATMENT

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Abstract

This research focuses on soil contamination, a significant global environmental problem, and assesses the effectiveness of the electrical method for addressing saline fine-grained soils. The study investigated soil samples collected from the large sebkha of Oran, situated in western Algeria.

An electric field is applied to promote the mobility and transport of ionic species through the soils in the electrical remediation approach A voltage of 15 V was applied to the samples for 7 days, during which various parameters of the of soils were analyzed.

The effectiveness of the electokinetic process is demonstrated by the experimental results that show a significant reduction in salt concentrations. Although this method appears promising for decontaminating saline soils, large-scale application is still a challenge due to environmental conditions and electrode configuration. This study sets the stage for further research into optimizing and implementing this technology in situ.

Keywords: saline soils, sebkha, electokinetic, compressibility, mechanical properties.

BREASTFEEDING SELF-EFFICACY IN ADOLESCENCE: THEORETICAL FOUNDATIONS AND LITERATURE REVIEW

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ABSTRACT

Introduction and Purpose: Adolescent pregnancies represent a significant public health concern in terms of maternal and infant health. Pregnancies occurring during this period bring biological, psychosocial, and economic risks. Among adolescent mothers, short breastfeeding duration, lack of knowledge, low self-confidence, and insufficient support negatively affect breastfeeding success. Breastfeeding self-efficacy is one of the key factors determining a mother's confidence and success in breastfeeding. The aim of this review was to examine breastfeeding self-efficacy levels, influencing factors, and enhancing interventions among adolescent mothers.

Materials and Methods: This review was based on relevant studies in the literature examining breastfeeding self-efficacy, its determinants, and interventions aimed at improving it among adolescent mothers.

Results: The literature shows that adolescent mothers generally have moderate levels of self-efficacy, which are lower compared to adult mothers. Social support, low anxiety levels, and positive breastfeeding attitudes increase self-efficacy, while lack of knowledge and psychosocial stressors have negative effects. Educational programs, professional counseling, and peer-support interventions have been shown to significantly improve breastfeeding self-efficacy and breastfeeding duration.

Discussion and Conclusion: In conclusion, strengthening self-efficacy-based nursing interventions and social support programs is recommended to promote breastfeeding among adolescent mothers.

Keywords: adolescent pregnancy; breastfeeding; breastfeeding self-efficacy; social support; nursing intervention

WOMEN IN CURRENCY DESIGN: POWER, SYMBOLISM, AND NATIONAL IDENTITY

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ABSTRACT

Every coin or banknote reflects a piece of history. Coins, whether metal or paper, testify to everything that has happened by using different symbols including events or characters of historical interest. They play a key role in the political, diplomatic, economic and artistic spheres. The portrait of women on coins and banknotes has been a common practice for centuries. This paper aims to present the image of woman on the Albanian coins and banknotes during different periods of history and to see between the lines her role in the development of the society. The presence of the image of the woman on the coin or banknotes symbolizes her important and powerful role in society as well as the man.

Key words: *image, woman, coin, banknotes, symbol, society, history, country.*

MECHANISMS FOR ENSURING THE QUALITY OF HIGHER EDUCATION IN WARTIME

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ABSTRACT

The article discusses mechanisms for ensuring the quality of higher education in wartime as a strategic direction for the modernization of Ukraine's education policy. It emphasizes that the war has created new challenges for the higher education system, necessitating the adaptation of quality management processes, the digitization of the educational environment, and the strengthening of academic mobility and psychological support for students and teachers. It analyzes the regulatory and legal framework for the functioning of internal and external education quality assurance systems in crisis conditions. Key mechanisms for maintaining the quality of the educational process are highlighted: improvement of internal monitoring procedures, flexibility in the organization of learning, development of digital competencies of participants in the educational process, partnership with stakeholders and international institutions. The importance of academic integrity, innovative learning technologies, and effective communication in the education quality management system during wartime is emphasized. It is concluded that ensuring the quality of higher education in a state of war is a dynamic process that requires the synergy of state, institutional, and public efforts aimed at preserving the educational potential and sustainable development of the country.

Keywords: quality of higher education, war, internal quality assurance system, external quality assurance system, academic integrity, digitalization of education, sustainability of the educational environment.

THE MAHOMET MOTIF IN VOLTAIRE AND GOETHE

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ABSTRACT

This article provides a comparative analysis of the "Mahomet" motif in Voltaire's (1694–1778) tragedy Mahomet ou le Fanatisme (1741) and Goethe's (1749–1832) poem Mahomets Gesang (1772–1773), considering historical, philosophical, and aesthetic dimensions. In both works, the Prophet Muhammad is employed as a symbolic figure; however, different meanings are ascribed to him depending on the authors' respective historical contexts and ideological perspectives. Voltaire, one of the leading figures of Enlightenment thought, composed his work within the framework of 18th-century European rationality and critical inquiry, presenting a critique of religious intolerance and the rise of fanaticism. In this context, Voltaire depicts the figure of Mahomet as a fraudster and manipulator who exploits religion for personal gain. In contrast, Goethe, one of the most prominent figures of German literature, addresses the Mahomet motif in his poem written at the age of twenty-three within the aesthetic framework of the Sturm und Drang movement. The poem foregrounds themes such as emotional intensity, integration with nature, creative power, and exuberance. Deeply interested in Eastern culture and Islam, Goethe presents a reading of Mahomet that differs from Voltaire's critical approach, through the river metaphor in the poem, he emphasizes Mahomet's strength, unifying influence, and inspirational effect on those around him. In this study, these two works, which were written approximately thirty years apart, are analyzed within the framework of the Comparative Literature method.

Key Words: Voltaire, Goethe, *Mahomet ou le Fanatisme*, Mahomets Gesang, Comparative Literature

IMPACT OF AGRICULTURAL CHEMICALS ON SOIL FERTILITY

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Abstract

The excessive use of agricultural chemicals such as fertilizers, pesticides, and herbicides has significantly increased crop productivity. However, this improvement has led to environmental concerns affecting soil quality and fertility. Continuous application of chemicals alters soil composition, disrupting its physical, chemical, and biological properties. This study examines long-term impacts of chemical inputs on pH, organic matter, nutrient balance, and microbial activity. A comparison of chemically treated and organically managed soils revealed increased acidity, low organic carbon, and reduced beneficial microorganisms in chemically exposed fields. These changes cause soil exhaustion, dependency on external fertilizers, and environmental threats such as groundwater pollution and biodiversity loss. The study highlights the need for sustainable practices like integrated nutrient management, biofertilizers, composting, and organic farming to restore soil health and ensure agricultural sustainability.

Keywords: Soil Fertility, Agricultural Chemicals, Sustainable Farming, Soil Health, Biofertilizers

IMPACT OF NANOPORE SHAPE AND ASYMMETRIC SALT SOLUTIONS ON BIOMOLECULE TRANSLOCATION: A SIMULATION INSIGHTS

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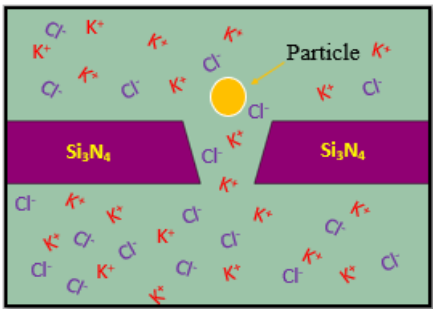
Abstract

Nanopores are nanometer-scale openings in solid or biological substrates that offer exceptional sensing capabilities for applications such as heavy metal, DNA, and lipid detection in both industrial and medical sectors. In this study, we investigate the sensitivity of nanopores using COMSOL Multiphysics simulations. A 25×25 nm Si_3N_4 nanopore with three distinct geometries—cylindrical, conical, and funnel shaped—was analyzed under various salt conditions (KCl, NaCl, and their combination) at a 4 M concentration. Each reservoir was modeled with dimensions of 2×1 μm. Our results indicate that when identical salt solutions are present in both reservoirs, the ionic conductance remains symmetric. In contrast, asymmetric salt combinations (KCl/NaCl) produce conductance variations under positive and negative applied voltages. The conical nanopore exhibits the highest electric field under an applied voltage of 2 V (9.12×10^7 V/μm), whereas the funnel-shaped nanopore shows the lowest electric field (4.81×10^7 V/μm). Sensitivity analysis reveals that the cylindrical nanopore with KCl/NaCl achieves 29.6% higher sensitivity than the conical nanopore and 9.7% higher than the funnel-shaped nanopore.

Keywords—Cylindrical, Funnel, Comsol Multiphysics, Poisson-Nernst-Planck, Navier–Stokes.



INSTRUCTORS' VIEWS ON THE ACADEMIC TURKISH NEEDS OF INTERNATIONAL STUDENTS

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ABSTRACT

The purpose of this study is to determine the academic Turkish proficiency levels and linguistic needs of international students based on the views of instructors who teach them. The study was designed as a case study within the qualitative research paradigm. The participants consisted of 12 instructors from various faculties at Alanya Alaaddin Keykubat University. Data were collected through a semi-structured interview form and analyzed using content analysis. The findings revealed that most instructors considered the academic Turkish proficiency of international students to be insufficient. Participants reported that students particularly struggled with productive language skills (speaking and writing), as well as understanding instructions, taking notes, making presentations, and comprehending academic texts. It was emphasized that short-term and communication-oriented Turkish preparatory programs are inadequate for developing academic Turkish competence. Instructors suggested developing field-specific academic Turkish programs, establishing academic speaking clubs and language workshops, promoting the use of mobile applications and digital materials, and enhancing interaction between Turkish and international students. In conclusion, the study highlights that academic Turkish instruction should be approached not only as language teaching but also as an integrative process supporting international students' academic adaptation and achievement.

Keywords: academic Turkish, international students, instructors' views, qualitative.

FRACTURE BEHAVIOUR OF A CIRCUMFERENTIAL CRACK IN AN API 5L X60 PIPELINE REPAIRED WITH A COMPOSITE PATCH

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Abstract

Pipelines play a crucial role in the oil and gas industries, actively contributing to their sustainable development by ensuring the functions of production, transportation, and distribution. Pipelines used for transporting gas and oil are typically buried and protected with a steel coating, applied both internally and externally, offering high mechanical performance. However, these structures remain vulnerable to deterioration caused by material loss or crack formation. Therefore, in-depth studies are required throughout their service life to predict and prevent potentially catastrophic failures. This study focuses on the behaviour of circumferential angular cracks in an API 5L X60 pipeline repaired using a composite wrap. The influence of crack geometry, composite overlap length, and its thickness on the Mode I Stress Intensity Factor (SIF) is analysed through a numerical simulation based on the three-dimensional finite element method (FEM), using the ABAQUS 6.14 software. The results indicate that for circumferential cracks, the risk of failure is more critical at the external crack front than at the internal one. Furthermore, the advancement of the crack through the pipe wall does not have a significant impact on the effectiveness of the repair at the internal front.

Keywords: API 5L X60, circumferential, cracks, Stress Intensity Factor, composite.

INVESTIGATION OF STRESS FLUCTUATIONS IN GRANULAR MATERIAL

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ABSTRACT

Introduction and Purpose: In geotechnical engineering, better understanding of the behavior such as stick-slip behavior, of materials enables their more effective use in geotechnical applications. When stress is applied to a granular (cohesionless) material, force chains form between the grains and carry the applied stress. However, these force chains cannot sustain the stress indefinitely. Stress accumulates along these chains and is released suddenly. These cycles of stress accumulation and release are referred to as stick-slip fluctuations. In this study, investigation of stick-slip fluctuations of rounded granular material and ist mixture with clay at different percentages was aimed.

Materials and Methods: In accordance with this purpose, direct shear testing apparatus was employed. Materials were tested under three different normal stresses at a constant shearing rate. Fluctuations were analyzed by counting stress drops above a certain value in data sets.

Results: Results revealed that, larger grains exhibited more fluctuations compared to smaller ones. For instance; while samples having grain size of 5.60-4.75 mm exhibited 69 stress drops in number, samples with 4.75-2.00 mm grain diameter exhibited 23 stress drops. Besides that, statistical values of magnitude of stress drops were also affected by grain size. Maximum stress drops in larger grain samples was obtained as 7.778 kPa, while in smaller grain samples 1.667 kPa under same testing conditions. These results shows that stress fluctuations are affected by grain size. Addition to these observations, adding clay at different percentages affected stick-slip fluctuations. Adding clay equivalent to only 10% of the weight of the 5.6-4.75 mm sample reduced the number of stress drops from 69 to 16. It is concluded that, stress fluctuations are affected not only by grain size, also adding different materials.

Key Words: Stick-Slip Fluctuations; Granular Materials; Direct Shear Test

SYNTHESIS AND CHARACTERIZATION OF NANO-CELLULOSE PHOSPHATE AS A NOVEL BIOMATERIAL FOR BONE TISSUE ENGINEERING

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Abstract

Bone tissue engineering (BTE) demands biocompatible, biodegradable scaffolds that mimic the natural extracellular matrix. Nanocellulose, a renewable and non-toxic polymer, shows great potential for bone regeneration. This study reports the synthesis and characterization of nanocellulose phosphate hydrogel, a chemically modified derivative, as a scaffold for BTE. Nanocellulose was extracted from rice straw via sequential alkali and acid treatments and characterized by ATR-FTIR, UV-Vis spectroscopy, XRD and SEM. The hydrogel was synthesized using dibasic ammonium phosphate and urea, with functional groups and morphology analyzed through ATR-FTIR, SEM-EDS, XRD, XPS and TGA. Swelling studies showed significant water uptake, with a maximum swelling ratio of 11.41 after 5 hours, indicating excellent hydrogel hydration. Further physicochemical properties, including mechanical strength and pore size will be evaluated. These results highlight nanocellulose phosphate hydrogel as a promising, sustainable biomaterial for bone tissue engineering applications.

Keywords: Rice straw, nanocellulose, environmentally friendly, hydrogel, scaffold, bone tissue engineering.

CLOUD GAMING VS TRADITIONAL CONSOLES: THE FUTURE OF INTERACTIVE ENTERTAINMENT

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Abstract

The gaming industry has shifted from physical consoles to cloud-based experiences. Cloud gaming lets players stream high-quality games on any device without downloads, offering convenience and affordability but depending on strong internet connections. Traditional consoles like PlayStation and Xbox provide stable performance, offline play, and exclusive titles, appealing to gamers who value reliability and ownership. Both models coexist—cloud gaming represents the future of flexibility, while consoles preserve the classic, immersive gaming culture.

COMPARATIVE ANALYSIS OF THE EFFECTIVENESS OF ENVIRONMENTAL AWARENESS FORMATION AMONG SCHOOLCHILDREN IN BELARUS AND THE UK THROUGH DIGITAL EDUCATIONAL RESOURCES

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Abstract

The global environmental crisis dictates the need to form a new type of ecological consciousness in the younger generation. In the digital era, this task is inseparably linked with the use of information and communication technologies that are native to modern schoolchildren.

The authors of the article make an attempt to identify effective digital tools for the development of environmental awareness as well as to foster the English language skills of secondary school students through the development and testing of an educational Telegram bot "EcoGuide".

The object of the study is the process of forming environmental awareness among schoolchildren.

The subject is the effectiveness of using a digital educational resource (Telegram bot) for the development of environmental awareness and English language skills.

The practical significance of the work lies in the implementation of the "EcoGuide" bot in the educational process of Belarusian schools, as well as in the system of additional education. The materials can be used in English lessons and extra curricular activities.

The authors of the article think that the use of a gamified digital educational resource (Telegram bot) in English will contribute to a greater increase in motivation to learn the English language and the formation of practical environmental habits compared to traditional methods of environmental education.

During the study, an empirical experiment was conducted to assess the effectiveness of using the "EcoGuide" bot in the process of forming students' environmental habits and fostering the English language skills.

Keywords: Telegram bot, environmental education, foreign language skills, extra curricular activities

NUMERICAL INVESTIGATION ON THE EFFECT OF WEIR HEIGHT ON SEDIMENT REMOVAL EFFICIENCY IN VORTEX-TYPE SEDIMENTATION BASINS

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ABSTRACT

Introduction and Purpose: In vortex settling basins, geometric parameters such as outlet weir height influence hydraulic performance, flow structure, sediment removal efficiency, and water discharge volume from outlets. This study aims to numerically investigate the effects of outlet weir height on flow patterns, sediment concentration distributions, and removal efficiency in vortex settling basins. Additionally, the impact of orifice discharge was examined through different outlet weir heights.

Materials and Methods: A 3D numerical model using FLOW-3D, validated with available experimental data, was developed to simulate flow and sediment transport in vortex settling basins. The model included both restricted orifice discharge (calibration model) and free orifice discharges, with outlet weir height set at 2 cm, 5 cm, and 8 cm. Sediment concentration and velocity distribution data were collected and analyzed. For different weir heights, sediment removal efficiencies and water discharge volumes were used to evaluate model performance.

Results:

Increasing the outlet weir height enhanced sediment removal performance but also increased the volume of water discharged from the basin as follows:

- 2 cm outlet weir height: 25% sediment removal efficiency, 20% of the total inflow water was discharged from the orifice
- 5 cm outlet weir height: 27.5% sediment removal efficiency, 25.7% of the total inflow water was discharged from the orifice
- 8 cm outlet weir height: 33% sediment removal efficiency, 31% of the total inflow water was discharged from the orifice

Discussion and Conclusion: The study confirms that outlet weir height is a critical design parameter affecting the balance between sediment removal efficiency and water discharge volume from the orifice. While a higher weir height improves sediment trapping, it also increases the outflow water volume. The numerical model showed good agreement with experimental data. These findings provide valuable insights for optimizing vortex settling basin design to achieve efficient sediment removal while managing water usage.

Key Words: Vortex Settling Basin; Weir Height; Sediment Removal Efficiency; FLOW-3D

PESTICIDE TOXICITY AND PHYTOREMEDIATION

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ABSTRACT

The use of various methods to increase agricultural productivity is steering conventional agriculture, particularly due to many reasons such as increasing wars, the destruction of natural resources, and climate change. One of the problems caused by this agricultural system is that the use of pesticides has become a popular solution in pest control. Pesticides play important roles in increasing the yield and quality of agricultural products and in protecting the products from pests, pathogenic organisms, and weeds. However, the unconscious and excessive use of pesticides leads to serious negative effects on soil, the environment, and human health. As a result of unconscious and incorrect uses, pesticides pose a great risk to the global environment due to their tendency to spread, be transported over long distances, and accumulate in the food chain. The intensive accumulation of pesticides in the soil causes various negative effects. Pesticides can be highly toxic and cause agricultural diseases such as cancer and neurodegenerative diseases.

Different technologies are used to remove the contaminants accumulated by pesticides in the soil. Chief among these is Phytoremediation, also known as herbal treatment or green remediation. Phytoremediation is an innovative and plant-based technology that draws attention in terms of its lower cost and in-situ applicability compared to other technologies used for pollution removal. This low-cost technology utilizes the ability of plants to remove organic pollutants like pesticides from the soil or render them less dangerous. The special plants used in this technology aim to remove the pollution from the soil by absorbing it into their structure. These plants, referred to as Accumulators and Hyperaccumulators, are plants that can grow in highly contaminated areas and store the contaminants at high concentrations through their roots.

Phytoremediation technology, used to minimize the damage that pesticides can cause to the soil and human health by spreading into the environment through natural cycles, is an ecological method that challenges its competitors for sustainable agriculture in healthy and fertile soils. In this study, attention is drawn to the fact that Phytoremediation is a sustainable approach, emphasizing its potential to remove pesticide contamination in the soil at a low cost over large areas. Furthermore, it is aimed to guide new studies to be conducted on this subject.

Key Words: Pesticide Toxicity; Phytoremediation; Hyperaccumulator Plants; Soil Pollution

ANALYSIS OF MARKET DYNAMICS IN THE BORSA SME INDUSTRY INDEX: THE RELATIONSHIP BETWEEN PRICE, TRADING VOLUME, AND VOLATILITY

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ABSTRACT

Introduction and Purpose: Financial markets provide critical data to understand corporate performance and investor behavior. SMEs (Small and Medium-sized Enterprises) play a crucial role in economic growth and market dynamics. However, most studies focus on large firms or major indexes, leaving a research gap on SME-specific market behavior. This study aims to analyze monthly closing prices and trading volumes of the five highest market capitalization firms (IZFAS, LUKSK, POLTK, RUZYE, and YAPRK) listed in the BIST SME Industrial Index from 2020 to 2025 to examine price, volume, and volatility dynamics.

Materials and Methods: The data was processed in MATLAB. Time series plots, volatility calculations, moving averages, Bollinger Bands, scatter plots, linear regression, and correlation matrices were used. Volatility was calculated as the standard deviation of returns, representing the relative changes in prices and volumes. Moving averages and Bollinger Bands were employed to observe long-term trends and the expected fluctuation ranges. Scatter plots and correlation matrices were used to assess the relationships between price and trading volume.

Results: Price volatility ranged between 19%–43%, indicating relatively stable prices, whereas volume volatility ranged from 90%–130%, showing highly fluctuating trading activity. Specifically, YAPRK exhibited the highest price volatility (43%) and RUZYE the highest volume volatility (137%). The correlation analysis showed strong positive relationships between price and volume for some firms (e.g., RUZYE: 0.713), suggesting that trading activity often moves in parallel with price changes. Moving average and Bollinger Band analyses demonstrated long-term price and volume trends.

Discussion and Conclusion: The results indicate that BIST SME Industrial Index stocks, despite high trading volume volatility, maintain relative price stability. These findings contribute to understanding investor behavior and developing financial strategies for SMEs. The combination of numerical and visual analyses provides a comprehensive approach to evaluating market dynamics in SME stocks, offering practical insights for both academics and market practitioners.

Key Words: SME Stocks, Price-Volume Relationship, Volatility

CORPORATE CULTURE OF SILENCE: MECHANISMS THAT SILENCE EMPLOYEES' VOICES

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ABSTRACT

Introduction and Purpose: This study aims to explore organizational silence among administrative staff at a single university, focusing on factors that prevent employees from expressing their ideas, criticisms, or emotions. Organizational silence undermines psychological safety and hinders innovation. In hierarchical institutional cultures, silence may emerge through specific organizational mechanisms. The purpose of this research is to identify the individual, managerial, and organizational factors that contribute to silence and to provide a local contribution to the literature on organizational silence.

Materials and Methods: A phenomenological qualitative research design was employed. Data were collected using a semi-structured interview guide consisting of four main questions addressing personal concerns, leadership behaviors, group norms, and perceptions of organizational policies. Interviews were conducted with 15 administrative staff members from a single university using both face-to-face and online platforms. All interviews were audio-recorded, transcribed, and analyzed using thematic analysis. During coding, recurring themes were identified and grouped into individual, managerial, and organizational dimensions.

Results: Findings indicate that punitive leadership behavior, fear of demotion, and group norms reinforce employees' tendencies to remain silent. Participants reported concerns that voicing opinions could lead to negative consequences. Conversely, perceived psychological safety and fairness appeared to reduce silence. Some employees reported that open communication cultures and supportive managers helped them overcome silence. The study provides important insights for understanding organizational silence and developing strategies to reduce it within university administrative settings.

Key Words: Organizational Silence, Psychological Safety, Administrative Staff

SYNTHESIS AND CHARACTERIZATION OF 3-((1-CARBOXY-2-PHENYLETHYL) IMINO)-2, 2-DIMETHYL-3-OXOPROPANOATE AND ITS DIVALENT TRANSITION METAL COMPLEXES OF COBALT, NICKEL AND COPPER

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ABSTRACT

Schiff base ligand 3-((1-carboxy-2-phenylethyl) imino)-2, 2-dimethyl-3-oxopropanoate (L) and its complexes with Co (II), Ni (II), and Cu (II) were synthesized and characterized using FT-IR and UV-Visible spectral analysis, melting point/decomposition temperature and solubility. The FT-IR spectra of the ligand displayed band in the frequency region of 1550 cm^{-1}, which is attributed to υC=N stretching vibration, a fundamental characteristic of azomethine group that is common in Schiff bases. The observed band shifted to frequencies 1565, 1625 and 1610 cm^{-1} in the Co (II), Ni (II) and Cu (II) complexes respectively. This indicated the coordination of the ligand with the metal ions. The sharp melting points and decomposition temperatures of the compounds indicated their purity. The compounds were predominantly insoluble in water, slightly soluble in methanol and ethanol but readily soluble in polar aprotic solvents such as ethyl acetate and DMSO.

Keywords: Synthesis, characterization, divalent, transition metal, complexes,

MICROBIAL IDENTIFICATION AND BIOCHEMICAL PROFILING OF PATHOGENIC BACTERIA FROM TABLE EGG SURFACE WASHES

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Abstract

Table eggs are a protein source often used, but they can be tainted with a microbial that causes illness. The study researched the harmful bacteria that exist on eggs and its dangerous impact. We washed the eggs and then found out what bacteria were inside throughout the culture. We identify an insect in the essay by looking at its disappearance; there was a biochemical test that was used in the essay. In a study, several different kinds of bacteria were found in a sample. According to experiments, we discovered the following germs: *E. coli, Salmonella, Staphylococcus aureus, and Bacillus spp. infections, Klebsiella*, and a type of heat-labile spore-forming bacteria. The finding of these organisms shows how eggs may be involved in the movement of microbes. Proper cleanliness in cooking eggs could avoid public hazards. Don't agree to clean eggs for all people. All information helps us to make safer choices for our food, as well as understand the risks of it, and the reasons why to do so for our health.

Keywords: Bacterial identification, Biochemical profiling, Table eggs, Pathogenic bacteria, Food safety

MODEL-SUPPORTED IMAGE CLASSIFICATION APPLICATION BASED ON ESP32

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ABSTRACT

The development of projects involving machine learning is only carried out by experts with extensive machine learning knowledge. Furthermore, knowledge of a programming platform is required to use machine learning algorithms. Therefore, the use of machine learning algorithms can only be performed by experts in specific fields. However, considering today's technological advancements, machine learning studies are widely sought after by experts in various fields. It is even known that hobbyists require widespread use. Tools have been developed that allow users with little or no machine learning knowledge to quickly and easily train and use their own machine learning algorithm models with their own training set. These platforms even perform some preprocessing on the input data. This has made the use of machine learning algorithms more accessible to a wider audience. Some transformative tools have even been developed, enabling the use of these models on embedded platforms.

In this study, strawberry leaf images allocated for training were classified on the Teachable Machine platform developed by Google. The Kaggle Plant Village Dataset was used as the dataset. Data from this dataset was classified into healthy and burnt strawberry leaves. The resulting classifier model was then integrated to run on the ESP32 microcontroller. Finally, the strawberry leaf images allocated for testing were tested on the hardware. Classification results were obtained with accuracy, sensitivity, and specificity of 67.2%, 59.7%, and 70.4%, respectively.

Key Words: ESP32, Machine Learning, Teachable Machine, Image Classification, Plant Disease Classification.

IRRIGATION WATER USE EFFICIENCY UNDER DROUGHT AT MUSAÖZÜ DAM, ESKİŞEHİR (2016–2024): FINDINGS SUPPORTED BY SENTINEL-2 NDWI

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ABSTRACT

This study evaluates how drought constrains agricultural water supply, water-use efficiency, and scheme-level performance in the Musaözü Dam Irrigation Scheme, which is also a nature park of ecological significance. To integrate storage-demand-distribution dynamics, NDWI analysis was conducted with Google Earth Engine using operational records (2016-2024), hydrometeorological inputs (2016-2022), and Sentinel-2 imagery (2017-2024; May-October). Rainfall totals were obtained from the national meteorological service; effective rainfall(Peff) was derived in CROPWAT 8.0 using the USDA Soil Conservation method; reference evapotranspiration(ET_0) was computed via FAO-56 Penman–Monteith. Irrigation Water Use Efficiency(IWUE) indicators—water delivery per unit command area(WDCA), water delivery per unit irrigated area(WDIA), water-supply ratio(WSR), and irrigation ratio(IR)—were analyzed alongside pre-season reservoir status and annual delivered vs required volumes.

Annual rainfall/Peff ranged 279.6–480.0/261.4–427.3 mm(min2024; max2023). Pre-season stored water varied 1.025×10^6–$1.599\times10^6 m^3$ (reservoir occupancy 37–57%). Delivered vs required volumes showed pronounced interannual gaps, e.g., 2022 deficit ≈ $-0.392\times10^6 m^3$ (1.008 vs $1.400\times10^6 m^3$) and 2020 surplus ≈ $+0.360\times10^6 m^3$ (0.710 vs 0.350×10^6 m^3). IWUE indicators revealed strong contrasts: WDCA 2.09–4.09×10^3 $m^3 ha^{-1}$(max 2016; min 2020), WDIA 5.48–$11.83\times10^3 m^3 ha^{-1}$(max 2020; min 2022), WSR 72–203%(min 2022; max 2020), IR 18–56% (min 2020; max 2017). Two stress archetypes emerged: (i)2022 drought, combining the lowest WSR with NDWI-confirmed surface-water contraction and moderate IR; (ii)area-constrained operation(e.g.,2020; 2018–2019), with very high WDIA but low IR, indicating concentration of service on fewer hectares under conveyance/cropping constraints.

Conclusions and recommendations: Low pre-season storage combined with high ET_0 consistently aligns with depressed IR and/or inflated WDIA, evidencing pressure to meet crop demand amid shrinking supply. We recommend allocation rules tied to pre-season storage and seasonal ET_0 outlooks, scheduled/deficit irrigation at farm scale, conveyance improvements in open channels, alignment of crop pattern and sowing windows with expected Peff/ET_0, and NDWI-assisted early warning to support within-season adjustments and sustain agricultural production.

Key Words: Irrigation Water Use Efficiency; Drought; Sentinel-2; NDWI; Sustainable Agricultural Water Management.

Mushroom as bio-source of natural colorant for sustainable textile

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Abstract

The global textile industry faces growing pressure to reshape the textile sector through environmentally friendly practices. The non-biodegradability and toxicity of synthetic dyes forced the researchers to explore natural, and sustainable sources of natural colorants to replace synthetic dyes, noxious chemicals and fixatives. Among natural resources, mushrooms have emerged as an unexplored and promising source of natural colorants. Mushrooms are an admirable source of natural colorants, including carotenoids, flavins, quinones, and melanin that offer a wide spectrum of vibrant colors ranging from yellow and orange to brown and black. These natural colorants not only produce aesthetic shades onto fabric but also add functionalities such as antimicrobial, antioxidant, and UV-protective characteristics. Applications of these natural colorants lessen the reliance on man-made colorants, thus minimizing the negative effect of the textile sector on our ecosystem. Additionally, the cultivation of mushrooms on agricultural and household waste supporting the bio economy. The current study examines the untapped potential of mushrooms as a renewable and superior source of natural colorant for textile applications, highlighting the promising role in green innovation and sustainability in the textile industry. The successful assimilation of these natural colorants offers a biodegradable, sustainable, non-toxic, and economically promising pathway towards accomplishing truly eco-conscious and sustainable textile production, enlisting mushrooms as an essential biological source shaping the next generation of the coloration industry.

Keywords: Natural colorants, textile industry, sustainability, green chemistry, textile innovation, and mushroom colorants.

MENTAL HEALTH IN ANIME: ANIMATION REFLECTS AND RESHAPES REAL-WORLD CONVERSATIONS

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Abstract

This research explores how anime, as a cultural and artistic medium, reflects and reshapes real-world conversations about mental health. Anime series such as *Neon Genesis Evangelion*, *Welcome to the NHK*, and *A Silent Voice* portray complex struggles including depression, anxiety, social withdrawal, and trauma, often through highly visual and symbolic narratives. These depictions resonate with global audiences by providing relatable experiences and sparking dialogue about issues that are frequently stigmatized or overlooked in society. The study examines anime both as a mirror—capturing the realities of psychological distress within cultural contexts—and as a catalyst for change, offering viewers alternative ways of understanding, empathizing, and engaging with mental health. By combining media analysis, psychological frameworks, and audience reception studies, this research highlights anime's role not only as entertainment but also as a powerful tool for education, awareness, and de-stigmatization of mental health in contemporary society

Keywords: Anime, Mental Health, Representation, Psychology, Japanese Culture, Media Studies, Social Awareness

COMPARATIVE HISTOLOGICAL ANALYSIS OF THE GONADAL STRUCTURE IN AQUACULTURE-RELEVANT SHRIMP SPECIES FROM ALGERIA (PENAEUS KERATHURUS)

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Abstract

Crustacean farming in Algeria, particularly shrimp farming, is an emerging activity with significant potential due to the country's long coastline and favorable environmental conditions. The main species include the Mediterranean white shrimp (*Penaeus kerathurus*), the giant tiger prawn (*Penaeus monodon*), and the Pacific white shrimp (*Litopenaeus vannamei*), valued for their rapid growth and profitability. Shrimp feeding combines natural sources (phytoplankton, zooplankton) and enriched pellets, while reproduction in captivity requires precise control of conditions (temperature, salinity) and facilities such as hatcheries. Although challenges remain regarding infrastructure and training, this sector represents a promising economic opportunity to diversify aquaculture and meet both local and international demand.

Keywords: Crustaceans, farming, Algeria, shrimp.

BIOACTIVE COMPOUNDS FROM *DICLIPTERA CUNEATA NEES TARGET DISEASE CAUSING PROTEINS*

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Abstract

The present investigation focuses on identifying the potential bioactive compounds from the medicinal plant *Dicliptera cuneata Nees*. The computational and experimental approaches are utilized to explore the efficacy of these compounds in controlling various diseases. In recent years, *in silico* methods have emerged as a powerful tool in the discovery and development of novel therapeutic agents, complementing experimental findings. The methanolic extract of *D. cuneata* leaves was subjected to phytochemical profiling by using GC-MS analysis to identify the bioactive constituents. Virtual screening and molecular docking were performed to predict the interaction of phytocompounds with selected target proteins involved in cancer, inflammation, diabetes, and oxidative stress. *In vitro* assays were performed to evaluate the anti-inflammatory, antioxidant, and anti-diabetic activities of the methanolic extract. Among the, phytocompounds, twelve compounds exhibited the highest binding affinities, with docking scores in the range of −9.4 kcal/mol, indicating strong interactions with key protein targets. The *in vitro* results are positively correlated with *in silico* findings, demonstrating significant anti-inflammatory, antioxidant, and anti-diabetic activities in a dose-dependent manner. This integrated *in silico* and *in vitro* approaches highlights the therapeutic potential of *Dicliptera cuneata* as a promising source of multi-target bioactive compounds. The findings warrant further *in vivo* investigations and clinical studies to validate its efficacy and mechanisms of action, contributing to the development of novel plant-based therapeutic agents for the management of cancer, inflammation, diabetes, and oxidative stress.

Keywords: *Dicliptera cuneata*, Phytocompounds, cancer, diabetes, protein targets

NUMERICAL AND EXPERIMENTAL EVALUATION OF EPS PACKAGING DESIGN FOR INDUCTION HOBS

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ABSTRACT

Introduction and Purpose: During the transportation and storage of domestic appliances, the packaging system plays a critical role in protecting products from mechanical damage. In induction hobs, where fragile glass-ceramic surfaces are widely used, improper packaging design can lead to cracking or misalignment even under low-impact conditions. Therefore, designing an efficient EPS (Expanded Polystyrene) packaging that can absorb energy during accidental drops and distribute stresses uniformly across the product surface is essential for ensuring both structural integrity and customer satisfaction. In this study, the structural performance of an EPS (Expanded Polystyrene) packaging design developed to enhance the transport and drop resistance of domestic induction hobs was evaluated using the Finite Element Analysis (FEA) method.

Materials and Methods: The research focused on the 60/65 cm induction hob series, and the simulations were performed in LS-DYNA according to the 10-point drop test procedure. The product and packaging geometries were simplified in the CAD environment, while the material properties were obtained from the Granta Selector database and supplier data. The fracture criterion of the glass-ceramic surface was experimentally validated in accordance with the DIN EN 1288-5 standard, and the effective fracture strain was determined as 0.0012. This value was defined in the drop test simulations to predict the onset of glass breakage For validation purposes, an experimental drop test was conducted using a gas hob model with a similar EPS structure, and the results were compared with the corresponding FEA simulations. Both results showed a strong correlation, as the EPS cracked in the same region under impact, confirming the accuracy of the numerical model. Following this validation, two alternative EPS packaging concepts were designed and analyzed for the induction hob. In the first design, glass breakage and local compression were observed under corner drop conditions, while the second design optimized through multiple geometric iterations eliminated glass failure by improving impact absorption zones. In the final revision, the minimum distance between the glass corner and the base was increased to 16.2 mm. The maximum deformation during impact was measured as approximately 50 mm in the experimental test, which showed excellent agreement with the FEA prediction of 50.7 mm.

Results: Consequently, this study demonstrates that LS-DYNA-based drop test simulations can successfully predict the mechanical behavior of EPS packaging and closely replicate experimental results. The proposed approach effectively reduces the need for repetitive physical testing and provides an integrated methodology for optimizing packaging design in terms of both product safety and cost efficiency.

Key Words: Induction Hob; Packaging; Drop Test; LS-DYNA; FEA

ECONOMETRIC ANALYSIS OF REGIONAL FINANCIAL PORTFOLIO BEHAVIOURS: THE CASE OF TÜRKİYE (2008 – 2024)

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ABSTRACT

Purpose: The primary aim of this study is to examine the socioeconomic factors affecting individual financial portfolio values at the regional level in Türkiye. Understanding financial investment behaviors is crucial for enhancing financial depth and literacy in developing countries. Drawing on portfolio theories, the study analyzes how individuals' investment decisions are shaped by income levels, educational attainment, household structure, and employment conditions.

Materials and Methods: The analysis utilizes panel data covering Türkiye's 26 NUTS-2 regions (İBBS-2) for the period 2008–2024. The dependent variable is the logarithm of total individual portfolio values at the regional level. Explanatory variables include average household size, the proportion of higher education graduates, employment rate, and GDP per capita. To address potential endogeneity issues, the Two-Stage Least Squares (IV-2SLS) estimation method was employed.

Results: The results indicate that both per capita GDP and the share of higher education graduates positively and significantly influence portfolio size. In contrast, household size and employment rate exhibit negative effects. Notably, the negative coefficient of the employment rate can be explained by a reduction in individuals' risk appetite with increasing formal employment, implying that individuals with stable incomes tend to allocate savings toward secure instruments, such as deposits, rather than capital markets.

Conclusion: The findings suggest that regional income growth and education levels support the accumulation of financial assets, whereas larger households and higher employment reduce interest in riskier investment instruments. In this context, enhancing financial literacy and promoting the diversification of household portfolios in Türkiye should be considered policy priorities to foster sustainable financial depth.

Key Words: Financial Portfolio Behavior; Regional Analysis; Income and Education Effects; Panel Data Analysis; Financial Literacy

THE FAILURE OF THE MEXICAN DEVELOPMENT MODEL FOR PARTICIPATORY AND TRANSPARENT GOVERNANCE

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Abstract

This paper addresses the issue of the failure of the Mexican Development Model for participatory and transparent governance. It is a descriptive, cross-sectional, and observational study. The analysis is based on historical background, legal sources, as well as social and administrative data from the Mexican people.

The purpose of this research is to demonstrate how attempts to integrate society into governance have been carried out inefficiently. As is well known, citizen participation in decisions taken for the "benefit" of the state, municipality, or even the country is highly present and active; however, citizens are never truly satisfied with the strategies implemented in Mexico's governmental development. In many cases, this is because policies end up being more propaganda than reality; in others, it is due to the lack of ethics within the hierarchical structure of government, the lack of transparency, the ignorance of those in power, and the lack of political and social culture among citizens. Ultimately, it is society itself that chooses its rulers and representatives.

Therefore, it is necessary to identify the flaws within the numerous proposals, plans, innovations, and strategies—especially in the social sphere and in relation to the people. We must remember that we all represent our country, and it is essential to learn how to take the reins of such responsibility, to use them wisely for prosperity, and to live in harmony within a full and sovereign rule of law.

Keywords: Flaws, Social, Development

FROM SALICYLIC ACID TO FUNCTIONAL N-ACYLHYDRAZONES: COST-EFFECTIVE SYNTHESIS AND CORROSION INHIBITION POTENTIAL

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ABSTRACT

Acylhydrazones represent a distinctive class of Schiff bases that have attracted considerable attention due to their wide range of applications. These compounds serve as valuable intermediates in organic synthesis and coordination chemistry. Notably, N-acylhydrazones act as key precursors for various heterocyclic frameworks and exhibit strong coordinating abilities with metal cations. Several N-acylhydrazones and their metal complexes have demonstrated remarkable sensitivity and selectivity toward specific metals, as well as significant bioactive properties in medicinal chemistry.

In this study, we report the synthesis and characterization of two N-acylhydrazones prepared through simple and cost-effective methods using salicylic acid as a starting material. The target molecules were obtained via condensation of hydrazide intermediates with different natural and/or synthetic aldehydes, affording the desired products in good yields. The synthesized compounds were subsequently evaluated for their anti-corrosive activities, highlighting their potential for practical applications.

Keywords: N-acylhydrazone; Salicylic acid; eco-friendly synthesis, corrosion inhibitors.

THE RIGHTS OF THE ACCUSED UNDER THE ROME STATUTE AND THE TURKISH CONSTITUTION: A COMPARATIVE ANALYSIS FROM THE PERSPECTIVE OF FAIR TRIAL

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ABSTARCT

This study aims to comparatively examine the rights granted to witnesses under the Rome Statute—the primary normative source of international criminal law—and the rights of defendants guaranteed by the Constitution of the Republic of Türkiye. Although Türkiye is not a State Party to the Rome Statute, the Statute is widely regarded as the most comprehensive expression of universal standards of criminal justice and serves as a significant reference norm even for non-party states. Therefore, comparing the procedural safeguards for defendants under the Rome Statute with those available in the Turkish legal system is valuable for assessing Türkiye's level of alignment with international criminal justice standards.The study focuses particularly on four fundamental rights within the scope of the right to a fair trial: the presumption of innocence, the right to remain silent and not to incriminate oneself, the right to legal assistance, and the right to be tried within a reasonable time. These rights are enshrined in Articles 55 to 67 of the Rome Statute and are similarly protected under Articles 36 to 38 of the Turkish Constitution. The research undertakes a comparative analysis of the normative foundations and practical implementations of these rights, drawing on the case law of the International Criminal Court (ICC) and the individual application decisions of the Turkish Constitutional Court. Ultimately, the study demonstrates that, despite not being a party to the Rome Statute, Türkiye offers a largely comparable level of protection for defendants based on the European Convention on Human Rights (ECHR) and its own Constitution. However, it also discusses areas where legal and institutional improvements could enhance the implementation of certain complementary safeguards envisioned by the Rome Statute within Turkish judicial practice.

Key Words: Right to a Fair Trial; Rome Statute; Turkish Constitution; Rights of the Accused

GOBL-FOX: MULTI-PRODUCT BATCH PLANT OPTIMIZATION VIA FOX ALGORITHM ENHANCED WITH GHOST OPPOSITION-BASED LEARNING

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ABSTRACT

This study introduces GOBL-FOX, a novel metaheuristic method developed for Multi-Product Batch Plant optimization. The multi-product batch plant problem is a highly complex industrial optimization problem that involves planning the production of multiple products in batches using shared equipment infrastructure. This problem requires determining the number and sizes of parallel equipment units at each production stage, as well as the capacity and quantity of intermediate storage tanks.

The proposed method, developed based on the original FOX algorithm, achieves significant improvements in exploration and exploitation phases through the integration of Ghost Opposition-Based Learning (GOBL) strategy into the FOX algorithm. The GOBL strategy generates new candidate solutions called "ghosts" by combining information from the current best individual, current individual, and a random candidate solution. In the GOBL-FOX algorithm, a broader search is conducted in the solution space during the exploration phase, and when stagnation is detected, a portion of the population is reinitialized to prevent entrapment in local minima.

The effectiveness of the algorithm was tested by comparing it with frequently used algorithms in the literature, including PFA, SCSO, GWO, and the original FOX algorithm. The results demonstrate that GOBL-FOX is superior to its competitors in terms of best, average, and worst solution values. Furthermore, GOBL-FOX achieves the lowest standard deviation value, indicating improved solution stability compared to competing algorithms. Convergence curve analyses also reveal that GOBL-FOX exhibits fast and stable improvement. Consequently, it is concluded that the GOBL-FOX algorithm offers an effective and reliable alternative for complex optimization problems.

Key Words: GOBL-FOX algorithm; FOX algorithm; Metaheuristic algorithms; Multi-Product Batch Plant optimization; Ghost Opposition-Based Learning

EXAMINING THE RELATIONSHIP BETWEEN ATTACHMENT STYLES AND LEVELS OF LONELINESS IN UNIVERSITY STUDENTS

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ABSTRACT

Introduction and Purpose: This study examined the relationship between university students' attachment styles and their levels of loneliness. The purpose of the study was to determine the effect of students' attachment styles on their levels of loneliness and to reveal the interaction between them.

Materials and Methods: A correlational survey model, one of the quantitative research methods, was used in this study. The sample consisted of a total of 300 university students (150 female, 150 male) aged between 18 and 36. Data were collected using the Three-Dimensional Attachment Style Scale and the UCLA Loneliness Scale. The distribution of participants according to class level was balanced, with 26% being first-year students, 24% second-year students, 24% third-year students, and 26% fourth-year students. Correlation, regression, and one-way analysis of variance (ANOVA) methods were used in the analysis of the data.

Findings: Analyses: conducted by gender revealed a significant difference between female and male students' levels of loneliness. Overall, it was determined that males had higher levels of loneliness and avoidant attachment, while females had higher levels of secure attachment. Analyses conducted according to the class level variable did not reveal a significant difference in terms of loneliness scores. According to regression analysis results, attachment styles significantly predict loneliness levels in a negative direction and explain approximately 32% of the variance in loneliness.

Discussion and Conclusion: The research results show that individuals' attachment styles have a significant effect on their loneliness levels. As secure attachment levels increase, loneliness decreases; as anxious and avoidant attachment levels increase, loneliness increases. These findings reveal that attachment styles significantly affect individuals' satisfaction in social relationships and emotional well-being.

Keywords: University students, Loneliness, Attachment styles

THE CURRENT STATUS OF SHEEP BREEDING IN THE CENTRAL ANATOLIA REGION

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ABSTRACT

This study presents a comprehensive assessment of the strategic importance of small ruminant production in Türkiye, emphasizing the Central Anatolia Region's pivotal role. Türkiye hosts around 56 million small ruminants, 79% of which are sheep (TUIK, 2023). Sheep farming is crucial for sustaining rural livelihoods, ensuring food security, and utilizing arid and semi-arid lands efficiently. Between 2015 and 2024, total sheep numbers, wool production, and meat yield have increased overall. The growing share of Merino sheep reflects a transformation toward higher quality and productivity. During the same period, sheep meat's contribution to total red meat rose from 21% to 24.2%. Central Anatolia's continental climate, extensive but moderately productive steppe pastures, and plateau morphology make it the most suitable region for sheep production. Flock concentration along the Konya–Ankara–Eskişehir axis highlights the advantages of forage availability, breeding organization, and market access, though challenges persist due to drought, feed costs, and rangeland degradation. Breeding programs involving Akkaraman, Central Anatolian Merino (CAM), and Malya breeds have significantly enhanced both productivity and adaptability. Since 2005, community-based breeding initiatives and the adoption of SNP-based genomic tools have accelerated genetic progress and improved performance indicators such as birth and weaning weights and daily gain.

Keywords: Central Anatolia, Sheep production, Akkaraman, Central Anatolian Merino (CAM), Merino, Pasture ecology, Breeding

ARTIFICIAL INTELLIGENCE APPLICATIONS IN THE HEALTHCARE SECTOR

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ABSTRACT

Introduction and Purpose: Artificial Intelligence Applications in the Healthcare Sector

Artificial intelligence (AI) applications stand out today as one of the most striking technological advancements in the healthcare sector. AI-based systems play an active role and make significant contributions to healthcare systems in various areas such as early diagnosis of diseases, personalized treatment methods, drug development processes, robot-assisted surgery, patient monitoring, and the management of healthcare services. Thanks to big data analysis and machine learning techniques, the progression of diseases can be better understood, risk profiles based on individuals' genetic and environmental factors can be created, and treatment planning can be personalized.

One of the most important advantages of AI is its potential to reduce the rate of errors in diagnostic processes. In imaging fields such as radiology and pathology, small details that may be overlooked by the human eye can be detected through AI algorithms. This plays a critical role in the diagnosis of diseases such as cancer, where early detection significantly increases the chances of successful treatment. Similarly, robot-assisted surgical applications provide greater precision during operations, minimizing the risk of complications.

AI not only enhances clinical processes but also increases efficiency in healthcare management. AI solutions make noteworthy contributions in areas such as analyzing electronic health records, organizing appointment systems, optimizing the use of hospital resources, and shaping healthcare policies based on data. In addition, wearable devices and remote patient monitoring systems improve continuity in the management of chronic diseases and support patient adherence.

FINDINGS

1. Core Application Areas in Healthcare

• Imaging and Early Diagnosis: AI algorithms are widely used to detect anomalies in radiological images and to identify diseases such as cancer at early stages.

• Personalized Treatment: Analysis of genetic and molecular data enables the creation of patient-specific treatment plans, with particularly effective applications in oncology.

• Drug Discovery and Development: Big data analytics facilitate the rapid identification of potential compounds, offering significant savings in time and cost.

• Remote Monitoring and Wearable Technologies: These tools are increasingly used for tracking chronic conditions and providing real-time alerts.

• Hospital Management and Operational Efficiency: AI-based optimization is applied to appointment scheduling, staff planning, and inventory management.

2. Benefits and Proven Impacts

• Improved diagnostic accuracy and speed, with some imaging tasks outperforming human capabilities.

• Earlier initiation of treatment and enhanced patient monitoring contribute to better clinical outcomes.

• Drug development processes benefit from reduced costs and shorter timelines.

• Increased efficiency in hospital operations and optimized resource utilization.

3. Risks and Documented Challenges

• Data Privacy: Ongoing uncertainties persist regarding the sharing and consent mechanisms for health data.

• Model Generalizability: AI model performance may vary across different patient populations and medical devices.

• Model Architecture and Policy Implications: Performance gaps between proprietary large language models and open-source alternatives raise policy concerns.

• Ethics, Accountability, and Clinical Approval: These remain key barriers to scaling AI applications in healthcare.

Results: Artificial intelligence (AI) carries the potential to transform not only at the clinical level but across entire healthcare systems. The speed and accuracy it provides in diagnostic and treatment processes enhance the efficiency of healthcare services, while also offering strategic opportunities for policymakers in terms of resource planning, cost control, and reducing inequalities in access to care. However, realizing this potential requires updating national health policies to support AI integration, strengthening data governance and ethical frameworks, and ensuring that regulatory bodies establish clear standards.

Key Words: health, artifial intelligence, technological advancement

THE EFFECT OF EDUCATIONAL E-GAMES USED IN SCIENCE CLASSES ON STUDENT ACHIEVEMENT, PERMANENCE, AND ATTITUDES TOWARDS THE COURSE

This study constitutes a part of the researcher's master's thesis and was also supported by Bayburt University Scientific Research Projects (2024/69003-09) Coordination Unit.

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ABSTRACT

Introduction and Purpose: Science Education aims to develop individuals' research and inquiry skills and to foster scientific thinking habits. Experience-based learning practices that enable students to actively participate in the learning process contribute to making knowledge meaningful and permanent. In contemporary educational understanding, technology is considered an integral part of the teaching process; in particular, educational games increase students' motivation and help concretize abstract concepts. In this context, the present study aims to examine the effects of an internet-based educational game developed for the "Force and Energy" unit in Science Education on students' academic achievement, attitudes toward the course, and retention of learning.

Materials and Methods: A mixed-methods research design, in which quantitative and qualitative approaches are evaluated together, was employed. In the quantitative dimension, a quasi-experimental design with pre-test–post-test control groups was used. The study group consisted of 44 seventh-grade students attending a public middle school in the central district of Bayburt, selected through convenience sampling; 22 students were assigned to the experimental group and 22 to the control group. Three main instruments were utilized for data collection: the "Energy Academic Achievement Test," the "Attitude Scale Toward Science Course," and the "Internet-Based Educational Game Evaluation Questions." Necessary permissions for the use of these instruments were obtained, and qualitative data were collected through semi-structured interviews.

Results: A review of the literature reveals that numerous studies have examined the use of educational games in Science Education. Most of these studies focused on board games or digital games developed through specialized software. This research aims to contribute to the literature by investigating the effects of internet-based educational games—an approach rarely explored—on students' academic achievement, attitudes, and learning retention in Science Education. The findings expected from this study are anticipated to provide theoretical and practical contributions to the field.

Key Words: Science education, educational games, web 2.0 tools, learning

THE FUTURE OF TVET EDUCATION: A REVIEW ON CURRICULUM ENRICHMENT AS A STRATEGY FOR ADDRESSING SKILLS GAP IN NIGERIA

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Abstract

In an era marked by rapid technological change and evolving labour market demands, Technical and Vocational Education and Training (TVET) stands as a strategic solution to Nigeria's persistent skill gaps. This paper explores the current state of TVET in Nigeria, highlighting its challenges and proposing curriculum enrichment as a transformative pathway. The study emphasizes the need for competency-based education, public-private partnerships, digital integration, and policy reforms to align TVET outcomes with national development goals. Drawing on global best practices and local realities, this paper provides strategic insights for repositioning TVET as a critical driver of economic growth and youth empowerment.

Keywords: TVET Education, Curriculum, Curriculum Enrichment, skills Gap.

PHENOLICS OVER VITAMINS: A STATISTICAL ANALYSIS OF ANTIOXIDANT POTENTIAL IN 93 HONEYS OF VARYING BOTANICAL AND GEOGRAPHIC ORIGIN

The research was supported by University of Prishtina through research supporting grants

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Abstract

Honey is widely recognized for its antioxidant properties, which are primarily attributed to phenolic compounds rather than vitamin content. This study aimed to evaluate and compare the antioxidant potential of 93 honey samples of different botanical and geographical origins by measuring ascorbic acid (Vitamin C) content and DPPH radical scavenging activity. Samples were categorized as imported (n=38) or local Albanian honeys (n=55), and their botanical origin included monofloral types such as acacia, chestnut, and linden, as well as multifloral honeys.

Vitamin C content ranged from 2.86 to 4.12 mg/100g across all samples, with a mean of 3.76 ± 0.23 mg/100g. Antioxidant capacity, determined via DPPH assay, exhibited much greater variability, ranging from 9.4% to 79.5% inhibition (mean: 43.9 ± 13.4%). A statistically significant but weak inverse correlation was found between Vitamin C and DPPH values ($r = -0.22$, $p \approx 0.04$), suggesting that ascorbic acid is not the primary contributor to antioxidant activity in honey.

Botanical origin significantly influenced antioxidant capacity (ANOVA, $p \approx 0.004$), with dark honeys such as chestnut and honeydew exhibiting the highest DPPH activity (>60%), while acacia honeys recorded the lowest (<30%). In contrast, Vitamin C levels did not differ significantly among floral types ($p > 0.65$). Local honeys showed slightly higher Vitamin C content (3.84 mg/100g) compared to imported ones (3.63 mg/100g; $p < 0.001$), though DPPH values were not significantly different between these groups ($p \approx 0.15$).

These findings emphasize the dominant role of floral source over geographical origin in determining the antioxidant strength of honey. While Vitamin C levels remained relatively uniform and low, DPPH activity strongly reflected the phenolic richness of each honey type. This insight can guide both consumers and producers in selecting honeys with higher functional value based on botanical origin.

Keywords: Honey antioxidant activity, Vitamin C, DPPH assay, Botanical origin, Phenolic compounds

PROBIOTIC STRATEGIES FOR VIBRIOSIS MITIGATION IN BLACK TIGER SHRIMP (PENAEUS MONODON) AQUACULTURE: ADVANCES, CHALLENGES, AND FUTURE DIRECTIONS

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Abstract

Vibriosis, driven primarily by virulent *Vibrio parahaemolyticus*, *V. alginolyticus*, and *V. harveyi*, continues to be a major constraint to the sustainable expansion of *Penaeus monodon* aquaculture, particularly within tropical coastal production systems. Probiotics have emerged as a promising, environmentally responsible alternative to antibiotics for pathogen control. This review consolidates recent advances (2018–2025) in probiotic strategies targeting vibriosis, including competitive exclusion, secretion of antimicrobial metabolites, modulation of shrimp innate immunity, and improvement of water quality through ammonia-nitrogen transformation. Evidence from hatchery and grow-out trials demonstrates probiotics can achieve up to ~20% higher survival, reduced Vibrio loads, and improved growth and feed efficiency. However, inconsistent product quality, strain-specific efficacy, and a lack of standardized dosage protocols restrict widespread confidence and adoption, particularly in smallholder-dominated sectors such as Bangladesh. Future directions emphasize the development of locally adapted *Bacillus* spp. Probiotic strains, multi-omics investigations of host, microbiome, pathogen interactions, and policy-driven standardization for commercial product validation. Strengthening scientific industry collaboration is critical to transform probiotic use from empirical practice into a predictable biosecurity strategy for resilient *P. monodon* farming.

Keywords: *Penaeus monodon*; vibriosis; probiotics; *Vibrio* spp; aquaculture biosecurity.

PROCESS IMPROVEMENTS IN REGULATOR PRODUCTION WITH SERVO-CONTROLLED SYSTEMS AND KAIZEN APPROACHES

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ABSTRACT

This study focuses on the Kaizen applications implemented in regulator production lines. In the previous process, manually centering products onto machine fixtures posed significant occupational health and safety risks, potentially leading to serious injuries. Additionally, the use of machines with different designs and appearances in the assembly unit weakened visual management within the factory. Through the improvements made, both occupational health and safety risks were reduced, and visual management was strengthened, enabling employees to work in a safer and more standardized environment.

The improvements targeted enhancing part processing times, ensuring correct and safe product flow, applying permanent problem-solving techniques, and increasing and standardizing production levels through employee training. Insufficient torque and feed control of step motors in the production line were resolved through the integration of servo drives, allowing the regulation curve to be achieved at the desired speed and stability. This torque-controlled system also protects itself in cases of excessive feed, preventing potential failures.

In January 2024, the daily production was 230 units, with a 20% downtime rate due to high closing failures. By redesigning the locking mechanism with zamak material, this rate was reduced to 4%. Furthermore, the 15% rate of internal leakage failures was decreased to 3% through seal and flap renewals. The production time decreased from 140 seconds in January 2024 to 92 seconds in January 2025.

In addition, in the domestic regulator line, the gate valve system in the test devices was renewed with servo motor systems, eliminating slowdowns and sticking during testing. Valve breakages and related 20% downtime costs were calculated as 360,000 TL annually.

As a result of the Kaizen activities, significant improvements were achieved in both efficiency and quality indicators in the regulator production line, while creating a safer working environment in terms of occupational health and safety.

Keywords: Kaizen, Servo Drive, Functional Test

THE HUMAN VOICE IN THE AGE OF AI: RECONSIDERING COMMUNICATION AND REFLECTION IN FUTURE EDUCATION

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ABSTRACT

This report explores why communication and reflection skills are crucial for contemporary education, which must learn to coexist and collaborate meaningfully with AI. In the twenty-first century, communication is increasingly recognised as a transversal competence underlying performance across all fields of human activity. Communication is not merely a linguistic or social tool but a foundational cognitive process through which individuals construct meaning, relationships, and identity. This view aligns with Vygotsky's socio-cultural theory, which positions communication as the medium through which learning and higher mental functions develop (Vygotsky, 1978). Bandura's social cognitive theory similarly stresses the reciprocal relationship between communication, self-reflection, and self-regulation — skills that enable learners to adapt, cooperate, and innovate (Bandura, 1986).

Contemporary schools still remain the primary environment for cultivating communication competencies. Through classroom dialogue, peer interaction, and teacher feedback, students internalise values, behavioural norms, and communicative habits essential for civic participation and lifelong learning. Empirical evidence demonstrates that communicative competence strongly predicts academic success and socio-emotional wellbeing (Hattie, 2012; Mercer & Dawes, 2014).

A recent study conducted by the author (Vlaseva, 2025) across 50 school strategies from 20 administrative regions in Bulgaria, reveals a marked absence of a systematic approach to communication as a strategy. None of the schools have developed an independent communication strategy. In most cases, communication appears only as recommendations and suggested best practices in general, without established coherent methodological frameworks or a clear, in-depth policy/model to follow.

The author proposes an introduction of a communication management model in education that integrates a well-trained AI assistant and at the same time keeps the human being as the final authority. This will contribute to several significant benefits for the educational process. Such a model would enhance organisational efficiency, support informed decision-making, and foster a transparent, inclusive, and context-sensitive communication among all stakeholders. By automating routine communication tasks, providing personalized feedback, and analysing communication patterns, the AI assistant would enable educators and administrators to focus on pedagogical and relational aspects of their work. Furthermore, this approach would contribute to the development of digital literacy and ethical awareness among students and staff, promoting responsible interaction with AI technologies. Ultimately, the implementation of this model could strengthen the overall communicative competence of educational institutions, enrich reflective practices among educators, students, and parents, and establish a more adaptive, empathetic, and reflective culture of communication within the educational environment.

In the age of artificial intelligence, the communicative and reflective dimensions of education acquire new significance. Emerging studies show that AI-supported feedback enhances learners' self-reflection, motivation, and creativity (He et al., 2025). At the same time, human

communication remains irreplaceable in fostering empathy, ethical awareness, and critical thinking — qualities machines cannot replicate.

Therefore, rethinking communication and self-reflection as interdependent, strategically managed processes within schools becomes imperative. Purposeful communication policies can bridge human and artificial intelligence, ensuring that education remains not only technologically advanced but profoundly human-centred.

Keywords: Communication, Reflection, AI, Education, Communicative Competence, Digital Literacy, Ethical Awareness.

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REASSESSING OBJECTHOOD: AGENCY AND IDEOLOGY IN MEDIEVAL LITERATURE

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Abstract

This essay examines the premodern representation of objects, with a focus on the concept of 'objecthood' within medieval literature and culture. The research aims to re-evaluate the relationship between subjects and objects, moving beyond the late twentieth-century poststructuralist emphasis on subjectivity. The objectives are to analyze how medieval literature, particularly Geoffrey Chaucer's Canterbury Tales, reflects the agency of objects and the ideological constructs that blur the lines between human and nonhuman. The methodology combines a genealogical approach to 'thing theory' with an examination of various materialist strains, such as Marxism, phenomenology, sociology, and New Historicism. This diverse framework enables a nuanced understanding of how objects function in medieval narratives, without reducing them to mere reflections of human desires. The findings indicate that premodern objects possessed a form of autonomy and agency that challenges contemporary perceptions shaped by Enlightenment empiricism. The essay highlights that the distinction between subject and object, as well as the interplay between society and nature, is constructed through ideological contexts rather than being inherent to these concepts. The main conclusion highlights the importance of recognizing the active role of objects in medieval literature, suggesting that this perspective enriches our understanding of the cultural forces that shaped the medieval worldview. The originality of this study lies in its critique of both traditional positivist approaches and the limitations of poststructuralist interpretations, offering a fresh perspective on the material conditions that influenced medieval narratives. By foregrounding 'object-oriented studies,' the essay makes a significant contribution to ongoing discussions in the fields of medieval studies and material culture, thereby enhancing the relevance of the study.

Keywords: Objecthood, agency, medieval literature, material culture.

SCIENCE OF CLIMATES AND GEOENGINEERING

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Abstract

Climate science studies how interactions among the atmosphere, oceans, land, and living systems regulate Earth's climate. Human activities, especially greenhouse gas emissions, have accelerated climate change, prompting interest in geoengineering as a potential mitigation approach. Geoengineering strategies fall into two main categories: carbon dioxide removal (CDR) and solar radiation management (SRM). CDR aims to lower atmospheric CO_2 levels through methods such as afforestation, bioenergy with carbon capture, and direct air capture. SRM seeks to reflect a portion of incoming solar radiation using techniques like stratospheric aerosol injection or cloud brightening. While geoengineering may offer temporary relief, these methods involve environmental risks, ethical debates, and governance challenges. Careful evaluation of geoengineering's long-term impacts is essential to ensure responsible climate management.

Keywords: Climate Science, Climate Change, Geoengineering

EXPLORING ACTINOBACTERIA FROM ALGERIAN DESERT SOILS FOR THEIR ANTIMICROBIAL ACTIVITY AGAINST PHYTOPATHOGENIC MICROORGANISMS

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Abstract

Throughout their life cycle, plants and pathogens interact with a wide variety of organisms; these interactions can affect plant health in a positive and/or negative way (Corbaz, 1990; Nakkeeran et al., 2005). It is estimated that nearly 50% of the world's agricultural production is lost before or after harvest Biological control is one of the promising methods, it consists of the use of antagonistic microorganisms.

Among the latter, actinomycetes are the best candidate to be applied in the form of a living cell. They are known for their production of bioactive metabolites, their ability to colonize the rhizosphere and plant roots, their ability to control phytopathogenic microorganisms and to form spores adapted to the formation of stable products. However, these are important traits for the success of biological control (Xiao et al., 2002; Bressan, 2003).

The objective of this work is the screening of actinomycete strains isolated from Algerian Saharan soil, which inhibits some phytopathogens (bacteria and fungi).

The isolation of Actinomycetes is done on Vitamin-B chitin media after pretreatment with CaCo3.

The antimicrobial activity of Actinomycetes against these pathogens is done by the cross-striated method on ISP2 and YGB medium. incubation at 30°C for 24 hours for bacteria and up to 3 days for fungi (Aouiche et al 2013).

80 strains of actinobacteria were tested and 45 strains showed antiphytopathogenic activity or less against a fungus or bacteria, and the inhibition diameter reached up to 30 mm for some strains of actinomycetes.

This number of actinomycete isolates is much higher than other work carried out on the screening of actinobacteria against pathogenic bacteria (Aouiche et al., 2012, Toumatia et al., 2014).

Work is still being carried out to determine the pH kinetics, biomass and antiphythopathogenic activities of the actinomycete isolates obtained.

Keywords: Actinobacteria; Screening; inhibition; phytopathogenes.

A CURRENT APPLICATION IN CANCER TREATMENT: IMMUNOTHERAPIES

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Abstract

Today, immunotherapy is attracting attention as a new and current method for cancer treatment, offering low toxicity, inhibiting signaling mechanisms, and targeting host and host-specific treatment regimens. Immunotherapy, which utilizes the autoimmune system and produces durable clinical responses, has led to a better understanding of tumors and the ability to approach the disease from both the host and the non-host perspective. A wide variety of immunotherapy treatment methods (chimeric antigen receptor therapy, monoclonal antibodies (MoAb), tyrosine kinase inhibitors, oncolytic cancer vaccines, immune checkpoint inhibitors (ICI), and interferons) has taken its current place in the literature. However, the unknowns (characteristics, use, risks, management, etc.) of immunotherapy methods, which are very new in cancer treatment, are numerous. Changing treatment modalities means changing patient care and service delivery. Therefore, it is important for healthcare professionals to know the mechanisms of action of the drugs used in immunotherapy treatment, which body systems they affect, the side effects of the treatments, etc., for correct assessment, early intervention and approaches.

Keywords: Cancer, Immunotherapy, Healthcare Professiona

A NEW CONCEPT FOR MEASURING MASS PRODUCTION PARTS IN A VIBRATING ENVIRONMENT WITH A PROFILE LASER-MOUNTED COBOT

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ABSTRACT

Introduction and Purpose: Every machine, consisting of thousands of parts, is expected to operate reliably for many years. The magic that makes this possible lies in the reliability of the process, directly in the production stages. However, measuring mass production is a complex and expensive process because measurement times for mass-produced parts are often longer than part production times. Today, the responsibility for this reliability lies on the shoulders of production. Fortunately, Gauss's Statistical Process Control (SPC) theories can monitor reliability by measuring only a select few samples, rather than all parts, and the key instruments for this method are 3D Coordinate Measuring Machines (CMMs). However, the requirement for a vibration-free floor on CMMs necessitates that measurements be taken in a laboratory, away from the mass production line, and under special conditions.

Materials and Methods: This requirement poses a significant challenge for production, as it necessitates the placement of "own control fixtures" (CFs) near production lines. However, these custom-made CFs, which are tailored for each mass-produced part, are complex and expensive. This paper describes the idea of "automatic part measurement," which can take accurate measurements close to the production line (even in a vibrating environment) through a simplified control fixture, thanks to the profile laser mounted on a Cobot (collaborative robot) with a CMM approach. As an emulation of a unique automatic measuring system, such as a hybrid of CMM and Control Fixture, this configuration can also be referred to as CFMM (Control Fixture Measuring Machine).

Results: This research article explains the basic working principles of CFMM and discusses the effectiveness of the new method under vibration through measurement examples. In the experiments, a vibrating environment was created by driving an eccentric mass with a motor fixed to the CF, which carried the measurement system. The results show that measurements obtained using the new concept of checking control points on a simplified control fixture with a profile laser are satisfactory, even under vibration, thanks to the Kalman filter.

Key Words: Measurement, Control Fixture, Vibration, Collaborative Robot, Profile Laser

DEPRIVATION AND ADDICTION IN SOCIAL MEDIA APPLICATIONS

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ABSTRACT

Introduction and Purpose: Digitalization has initiated a process of transformation and change in many areas of social life. The concept of digitalization, which has permeated numerous areas such as education, culture, economy, and politics, has developed new mechanisms of production and consumption. From a communication perspective, traditional media tools have gradually begun to lose their influence, while new media tools have increased their impact on society. With Web 2.0, which exists within the capabilities of the internet, individuals have transformed their traditional media consumer role into a producer-consumer role. Users, who have become capable of accessing and using the information they want at any time thanks to social media platforms, have also begun to spend more time on the platforms. While social media applications are notable for their long-term use, their effects on deprivation and addiction have also reached a debatable level. Based on the above considerations, the concepts of deprivation and addiction are noteworthy as concepts that need to be evaluated and discussed within the context of the effects of social media. In this context, the aim of this study is to examine the relationship between social media applications and the concepts of deprivation and addiction.

Materials and Methods: This study will conduct a literature review and examine studies on the relationship between social media, addiction, and withdrawal. The resulting studies will be categorized to reveal the elements through which the relationship between the three concepts is explored.

Results: The study concluded that social media, addiction, and withdrawal are interconnected concepts that have negative impacts. The studies examined showed that the duration of addiction increases with social media use, and as a result, withdrawal occurs.

Key Words: New Media, Social Media, Digitalization, Internet.

MODAFINIL-INDUCED MANIC EPISODE:

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ABSTRACT

Modafinil is a wakefulness-promoting agent primarily used for the treatment of narcolepsy, obstructive sleep apnea, and shift work sleep disorder. Recently, it has also been employed as an augmentation strategy in major depressive and bipolar depressive episodes to reduce residual symptoms. However, due to its dopaminergic and noradrenergic effects, modafinil may induce manic or hypomanic switches in vulnerable individuals. We report a case of a 21-year-old male diagnosed with Bipolar I Disorder, who developed an acute manic episode following a single dose of modafinil (100 mg/day) initiated for excessive daytime sleepiness and concentration difficulties. The patient had been in full remission for eight months under valproate (750 mg/day) and olanzapine (10 mg/day). Within hours after modafinil intake, he presented with insomnia, irritability, pressured speech, increased energy, and psychomotor agitation. He was hospitalized and diagnosed with "Bipolar I Disorder, Medication-Induced Manic Episode" according to DSM-5 criteria. Haloperidol and lorazepam were initiated while maintaining his mood stabilizers, leading to full stabilization within one week. Modafinil inhibits dopamine and norepinephrine transporters and activates the hypothalamic orexin system, which may contribute to its wake-promoting effects but also destabilize mood in predisposed bipolar patients. Consistent with prior reports, our case suggests that modafinil may precipitate mania even during euthymic periods, especially in patients with high dopaminergic sensitivity. Caution is warranted when prescribing modafinil in bipolar disorder, and it should be reserved for depressive episodes under close psychiatric supervision.

Keywords: Modafinil, Bipolar Disorder, Mania, Dopaminergic System, Case Report

MANIC EPISODE INDUCED BY PSEUDOEPHEDRINE USE IN A PATIENT WITH BIPOLAR DISORDER

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Abstract

Pseudoephedrine is a sympathomimetic agent frequently included in over-the-counter cold medications. It increases catecholamine levels in the central nervous system by stimulating α- and β-adrenergic receptors and indirectly enhancing dopamine and norepinephrine release. Although generally safe, pseudoephedrine may provoke manic or psychotic symptoms in vulnerable individuals. We report the case of a 29-year-old man with Bipolar I Disorder who developed acute mania following pseudoephedrine exposure. The patient, in remission for seven months on lithium 900 mg/day and aripiprazole 15 mg/day, began using a pseudoephedrine-containing preparation (120–180 mg/day) for 15 days to relieve nasal congestion. He subsequently exhibited irritability, pressured speech, decreased sleep, excessive spending, and grandiose ideation. Upon psychiatric admission, the Young Mania Rating Scale (YMRS) score was 32, indicating severe mania. Laboratory tests were unremarkable. Pseudoephedrine was discontinued and treatment was modified to valproate 1000 mg/day and risperidone 4 mg/day, while lithium was tapered. Supportive psychotherapy and psychoeducation sessions were implemented. Within three weeks, YMRS decreased to 8, and the patient achieved clinical remission. Pseudoephedrine's ability to cross the blood–brain barrier and stimulate dopaminergic and adrenergic transmission may lower the threshold for manic activation in predisposed patients. This case illustrates that even short-term use of sympathomimetic agents can destabilize mood in bipolar disorder. Clinicians should carefully evaluate psychiatric history before prescribing decongestants and consider safer, non-sympathomimetic alternatives such as isotonic saline sprays or antihistamine-only options.

Keywords: Pseudoephedrine, Bipolar Disorder, Mania, Lithium, Risperidone

STRENGTH PROPERTIES OF REGUR SOIL BY WOOD ASH AND RICE HUSK ASH

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ABSTRACT

Generally, Cohesive soil haves a high plasticity nature and very prone to shear failure due to continuous loading. In cohesive soils, Regur Soil (Black cotton soil) is a major deposit soil available 20% of whole area in India and it occurs very hazardous problems in geotechnical properties i.e., heavy swelling and shrinking characteristics. This soil does not suitable for the foundations, highway pavements, embankments, canal linings, etc. This paper shows the strength improvement properties on regur soil with stabilization of rice husk and its ash with 5%, 7.5%, 10%, 12%, and 15% by conducting the laboratory tests. The main aim of this paper is to bring out the result analysis in various proportions and reduce the shrink effects, improve the strength in swelling effects at weather conditions on black soil.

Key words: Black Soil, Wood Ash, Compaction Test, Unconfined Compression Test, C.B.R Test.

ULTRASOUND-GUIDED TAP BLOCK WITH SEDATION AS A SAFE ALTERNATIVE TO GENERAL ANESTHESIA IN A HIGH-RISK PATIENT WITH LOW EJECTION FRACTION

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ABSTRACT

Introduction and Purpose: Patients with severe cardiac dysfunction and low ejection fraction (EF) present a high anesthetic risk, especially when oxygen saturation is compromised. In such cases, the choice of anesthesia becomes crucial to prevent hemodynamic deterioration and respiratory complications. The purpose of this report was to describe the successful surgical management of a patient with severely reduced EF and hypoxemia who underwent wound debridement under ultrasound-guided Transversus Abdominis Plane (TAP) block combined with light sedation, avoiding the need for general anesthesia.

Materials and Methods: A 65-year-old male patient with an ejection fraction of 30% and oxygen saturation of 85% on room air was scheduled for urgent wound debridement due to extensive necrosis and infection in the abdominal wall region. Considering the significant cardiac impairment and hypoxemia, general anesthesia was deemed high risk. Therefore, an ultrasound-guided TAP block was performed using a high-frequency linear probe. After adequate sensory block was achieved, minimal sedation was provided with intravenous agents titrated to maintain spontaneous ventilation. Continuous monitoring included ECG, noninvasive blood pressure, and SpO_2.

Results: The TAP block provided satisfactory analgesia throughout the procedure, allowing the surgical team to perform effective debridement without the need for airway manipulation or general anesthesia. The patient remained hemodynamically stable, with no desaturation or arrhythmia observed intraoperatively. Postoperatively, the patient was transferred to the intensive care unit for close monitoring. No perioperative complications occurred, and wound care was successfully continued.

Discussion and Conclusion: In patients with severely reduced cardiac function and limited respiratory reserve, regional anesthesia techniques such as TAP block can provide safe and effective alternatives to general anesthesia. This case highlights the importance of individualized anesthetic planning in high-risk patients, emphasizing ultrasound-guided regional anesthesia to minimize physiological stress. TAP block combined with mild sedation ensured hemodynamic stability, avoided airway manipulation, and resulted in a favorable perioperative outcome.

Key Words: TAP Block; Sedation; Low Ejection Fraction; Regional Anesthesia; Wound Debridement; High-Risk Patient

TELEMEDICINE AND THE PROTECTION OF PERSONAL DATA: BETWEEN INNOVATION AND LEGAL COMPLIANCE

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ABSTRACT

Telemedicine represents one of the most significant transformations of contemporary medical practice, situating the medical act within the digital sphere and redefining the physician–patient relationship. The transfer of consultations, diagnostics, and remote monitoring entails an extension of the traditional notion of medical care, while simultaneously generating major challenges in the field of personal data protection.

Medical information, by its inherently sensitive nature, requires a rigorous legal framework grounded in the principles of confidentiality, security, and informed consent. In the absence of clear normative safeguards, the risks of unauthorized access, excessive processing, or inappropriate use of data increase exponentially. In this context, achieving a balance between technological innovation and legal compliance becomes essential: digital progress must remain subordinate to the protection of human dignity and personal integrity.

Telemedicine cannot be perceived merely as a technical tool, but as an evolved form of medical practice that demands a legal culture adapted to new digital realities. Consequently, contemporary debate should focus on the development of a flexible yet coherent regulatory framework capable of ensuring both freedom of innovation and the absolute respect for the individual's fundamental rights.

Keywords: fundamental rights, telemedicine, medical information

THE EFFECTS OF SUPPORT ON ACCULTURATION AND ACADEMIC ACHIEVEMENT VARIABLES AMONG INTERNATIONAL STUDENTS IN TÜRKIYE

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ABSTRACT

This study investigates the relationship between international students' financial and social support status, their adopted acculturation strategies, academic achievement, and perceived Turkish language proficiency. The research was conducted using a correlational survey design with 67 international students studying at Alanya Alaaddin Keykubat University. Data were collected through the Acculturation Strategies Scale, adapted from Berry (1990), and a Student Information Form. Non-parametric tests (Chi-square, Mann–Whitney U, Kruskal–Wallis) were used for statistical analysis. Findings indicate that most students adopted the integration strategy, reflecting a balanced orientation toward maintaining their own culture while adapting to Turkish culture. A significant relationship was found between financial and social support and acculturation strategies ($\chi^2(3)=8.48$, $p<.05$). Students receiving support tended to adopt integration and assimilation strategies, whereas those without support preferred separation. Academic achievement differed significantly according to support status ($U=750.50$, $p=.007$), with supported students achieving higher GPA scores. However, no significant differences were found in perceived Turkish proficiency or between acculturation strategies and academic success ($p>.05$). These findings suggest that financial and social support mechanisms play not only an economic but also a cultural and academic role in international students' adaptation and success.

Keywords: International students, acculturation strategies, financial support, social support, academic achievement, Turkish language proficiency

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON NEWS CREDIBILITY: A CASE STUDY OF CHINESE NEWS PORTALS

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ABSTRACT

In recent years, the widespread use of artificial intelligence (AI) technologies in news production, distribution, and regulation has led to a restructuring of China's journalism industry ecosystem. Through algorithmic recommendations, content generation, public opinion monitoring, and automated content moderation, AI has significantly improved the efficiency and accuracy of news production. However, it has also sparked debate about the reliability of news, the transparency of sources and public trust. This study examines major Chinese news portals using content analysis, questionnaires, and case studies to examine the mechanisms through which AI influences news credibility.The results show that the use of AI in news recommendations and generation has a dual effect: on the one hand, it improves distribution efficiency and user satisfaction, but on the other, it undermines public trust in the reliability and objectivity of news.In this regard, this study proposes the creation of long-term mechanisms including algorithmic transparency, ethical review and institutional regulation to promote a positive interaction between artificial intelligence and the credibility of journalism.

News credibility, a crucial research topic in journalism and communication studies, encompasses multiple dimensions, including authenticity, authority, objectivity, and transparency. Traditional news credibility primarily stems from the reputation of media organizations and the professional ethics of journalists. However, the "black box algorithms" of artificial intelligence further complicate the news production and distribution process. When faced with algorithm-recommended and AI-generated content, the public often struggles to distinguish the source of information, leading to a widening trust gap between "machine-generated content" and "human reporting."Therefore, this paper attempts to analyze the current application status of artificial intelligence in Chinese news portals and its impact mechanism on news credibility from the perspectives of technical logic and dissemination effects, and proposes improvement paths based on this analysis.

A STUDY ON LITERACY, SKILLS, AND INTERDISCIPLINARY RELATIONSHIPS IN THE 2024 TURKISH LANGUAGE TEACHING PROGRAM

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ABSTRACT

Introduction and Purpose: This study aims to examine the literacy skills and the relationships between disciplines and skills included in the 2024 Turkish Language Teaching Programme prepared within the scope of the Turkey Century Education Model.

Materials and Methods: To this end, a case study design was employed in the research. The subject of the study is the 2024 Turkish Language Teaching Programme prepared by the Ministry of National Education. Descriptive analysis was used in the data analysis of the study. To ensure the reliability of the study, the data were examined by two researchers and consensus was reached on the coding. According to the findings of the study, the distribution of literacy types in the programme components was discussed, and their rates at each grade level were provided.

Results: These literacies are Information Literacy (20%), Digital Literacy (20%), Visual Literacy (20%), Cultural Literacy (15%), Data Literacy (20%), Art Literacy (2%), Financial Literacy (1%), Citizenship Literacy (1%), and Sustainability Literacy (1%). Looking at the interdisciplinary relationships within the themes, Social Studies (23%), Music (16%), Visual Arts (16%), Information Technology and Software (9%), Religious Culture and Ethics (9%), Science (%9), Physical Education and Sports (%5), Mathematics (%5), Technology and Design (%5), and History of the Revolution and Atatürkism (%3). Looking at the relationships between skills within the themes, Observation (%11), Information Gathering (%16) Questioning (16%), Structuring (17%), Synthesising (16%), Decision Making (17%), Analogy Reasoning (4%), Logical Verification (4%), Conflict Resolution (2%), and Reasoning (Logical Reasoning) (1%).

Discussion and Conclusion: According to the findings of this research, it has been concluded that the programme prepared within the scope of the Turkey Century Education Model embraces a multifaceted understanding of literacy, but there are significant imbalances in the distribution of types of literacy and the relationships between disciplines and skills. These results show that the programme supports meaning-making and decision-making processes by placing emphasis on cognitive and digital areas. At the same time, it was concluded that the dimensions of critical thinking and reasoning, which would enable cognitive development, were addressed in a limited manner and that the programme is open to development from a sociocultural perspective.

Key Words: 2024 Turkish Teaching Programme, Literacy, Discipline, Skills

AN EXAMINATION OF THE 2024 TURKISH LANGUAGE TEACHING PROGRAMME OF THE TURKISH CENTURY EDUCATION MODEL IN TERMS OF MEASUREMENT AND EVALUATION

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ABSTRACT

Introduction and Purpose: This study aims to examine the 2024 Turkish Language Teaching Programme, prepared within the scope of the Turkey Century Education Model, in terms of measurement and evaluation.

Materials and Methods: A case study design was used in the research. The subject of the study is the 2024 Turkish Language Teaching Programme. Descriptive analysis was used in the analysis of the data obtained, and coder reliability was employed to ensure the reliability of the data.

Results: According to the findings of the study, it is observed that task formats such as checklists (34), rubrics (24), open-ended questions (22), and presentations (17) are prominent among the measurement and evaluation tools and evaluation task formats used in the programme. The fact that tools such as self-assessment (2) are less prevalent than others indicates that applications enabling students to develop awareness of their own learning process remain limited. When examining the findings obtained within the scope of comprehension skills (listening and reading), it was determined that open-ended questions (f=22), multiple-choice questions (f=14), and knowledge transfer (f=11) tools had the highest frequency of use. The fact that tools such as self-assessment (f=4), self-reporting (f=5), progress chart (f=2) and observation form (f=1) were used less frequently in the programme indicates that assessments related to students' self-regulation and self-awareness processes were limited. Looking at the findings regarding narration (speaking-writing) skills, the checklist (f=24) and the rubric (f=24) stand out as the most frequently used tools. The infrequent use of tools such as self-assessment (f=2) and self-report (f=5) is thought to create limitations in measuring students' self-awareness and self-regulation skills.

Discussion and Conclusion: When examining the assessment tools and evaluation task formats used in the themes, it is observed that the assessment and evaluation processes in the themes generally cover cognitive, affective, and psychomotor domains, and in this context, the programme adopts a holistic assessment and evaluation approach. However, based on the findings, it is thought that the alternative assessment tools enabling students to evaluate their own learning processes are limited and that this finding is not consistent with the student-centred structure of the programme. It is considered important to increase the number of tools enabling students to evaluate their own learning processes, such as self-assessment and peer assessment, in subsequent updates of the programme.

Key Words: 2024 Turkish Language Teaching Programme, Assessment and Evaluation, Forms of Assessment Tasks

SUCCESSFUL AWAKE NASAL FIBEROPTIC INTUBATION IN A MAXILLOFACIAL TRAUMA PATIENT WITH LIMITED PULMONARY CAPACITY

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ABSTRACT

Introduction and Purpose: Airway management in patients with maxillofacial trauma presents a major challenge for anesthesiologists, particularly when mandibular fractures and restricted mouth opening coexist with limited pulmonary capacity. In such cases, awake fiberoptic intubation is considered the safest technique, as it allows airway control while maintaining spontaneous breathing. The purpose of this report is to describe the anesthetic management of a patient with facial fractures and restricted ventilation capacity who underwent awake nasal fiberoptic intubation.

Materials and Methods: A 29-year-old male patient was admitted to the emergency department following a motorcycle accident. Clinical examination revealed bilateral periorbital ecchymosis, lip lacerations, nasal deformity, and multiple facial fractures. Imaging confirmed the presence of hemopneumothorax and bilateral mandibular fractures. The patient was scheduled for mandibular reconstruction under general anesthesia by the plastic surgery team. Because of airway restriction and reduced pulmonary capacity, awake nasal fiberoptic intubation was planned. Prior to the procedure, 2 mg of intravenous midazolam was administered, and a remifentanil infusion was titrated to achieve sedation and analgesia. For airway topicalization, 4 mL of 4% lidocaine solution (160 mg) was nebulized over approximately 10 minutes to achieve mucosal anesthesia. This technique provided adequate anesthesia of the oropharyngeal and laryngeal structures. Fiberoptic bronchoscopy-guided nasal intubation was then performed successfully while maintaining spontaneous ventilation.

Results: The intubation was completed uneventfully without desaturation, airway obstruction, or hemodynamic instability. The patient tolerated the procedure well, and the subsequent surgical reconstruction was completed under general anesthesia without complications.

Discussion and Conclusion: Awake fiberoptic intubation remains the gold standard for anticipated difficult airways, particularly in patients with maxillofacial trauma and limited ventilation capacity. The combination of light sedation with midazolam and remifentanil infusion, along with nebulized topical anesthesia using 3–5 mL of 4% lidocaine solution, provides optimal patient comfort and procedural safety. This case highlights the importance of maintaining spontaneous breathing and securing the airway under direct visualization in trauma patients at high risk of difficult mask ventilation.

Key Words: Awake Fiberoptic Intubation; Maxillofacial Trauma; Difficult Airway; Remifentanil; Nasal Intubation; Lidocaine Nebulization.

VERTICAL RESOLUTION SENSITIVITY OF THE GRAYSCALE MEAN FOR TOOL-WEAR MONITORING IN TURNING

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ABSTRACT

Introduction and Purpose: Real-time monitoring of tool wear in turning is important for process reliability and economic efficiency. Turned-surface images are known to reflect wear, and various features extracted from these images have been used in the literature for real-time monitoring. In most studies, features have been computed from the entire image acquired after machining; however, in practical settings, coolant and chips may prevent uninterrupted full-surface imaging. Therefore, it is necessary to evaluate features performance across different resolution regions. This study investigates how the grayscale mean (G) feature previously used on full images reflects the wear trend when vertical resolution is reduced.

Materials and Methods: Turning experiments were conducted on AISI 4140 at five different cutting speeds, and surface images were acquired after each pass. Vertical resolutions were progressively narrowed starting from the full image, and G was recomputed for each resolution. Fit was assessed experiment-base (for each speed setting) by relating G–time trends to wear progression; in addition, the dynamic relationship was examined by comparing the logarithmic wear trend observed with increasing speed to the dynamic behavior of G. And Adj. R^2 values was reported.

Results: Across the five cutting speed settings, experiment-base consistency was evaluated. As vertical resolution narrowed, the relationship between G and the wear trend generally weakened both experiment-base and dynamically; however, the decrease was not strictly linear, and local maxima/minima were observed at mid-range coverage levels, depending on illumination and acquisition conditions.

Discussion and Conclusion: When considered in terms of the G feature, vertical resolution should be treated as a tunable analysis parameter: very narrow resolutions may yield weaker fits, whereas adequate coverage can lead to more stable trend estimation. Given potential partial occlusions in real applications, reporting feature behaviors across multiple resolution levels is recommended.

Key Words: Tool Wear Monitoring, Image Processing, Grayscale Intensity, Vertical resolution

THE IMPACT OF THE ECONOMIC CONFIDENCE INDEX AND GEOPOLITICAL RISK INDEX ON FOREIGN DIRECT INVESTMENT: THE CASE OF TURKIYE (2013–2025)

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ABSTRACT

Purpose: This study analyzes the determinants of foreign direct investment (FDI) in Türkiye for the period from February 2012 to June 2025. Within this framework, the effects of the Economic Confidence Index (ECI) and the Geopolitical Risk Index (GPR) on FDI are examined. The study aims to demonstrate that investors' decisions are influenced not only by economic conditions but also by political and geopolitical factors. In particular, for a developing country such as Türkiye—which is exposed to significant geopolitical risks—the direction and magnitude of the impact of geopolitical risk perception on FDI are theoretically assessed. Furthermore, by examining the extent to which the economic confidence environment affects investment flows, the role of confidence perception in shaping investment behavior is analyzed. Accordingly, the main purpose of this study is to empirically reveal the effects of ECI and GPR on foreign direct investments in Türkiye and to explain the economic and geopolitical factors that shape investor behavior.

Materials and Methods: The research utilizes monthly data covering the period from 2012:02 to 2025:06. In the model, the logarithm of foreign direct investment (FDI) is used as the dependent variable, while the Economic Confidence Index (ECI) and the Geopolitical Risk Index (GPR) serve as independent variables. The stationarity of the series was tested using the Augmented Dickey-Fuller (ADF) test, and all variables were found to be stationary at level values. Accordingly, the model was estimated using the level data. To minimize the effects of outliers and potential structural breaks during estimation, the Robust Least Squares (RLS) method was employed.

Results: According to the analysis results, both the Geopolitical Risk Index (GPR) and the Economic Confidence Index (ECI) have statistically significant effects on foreign direct investment (FDI). The Economic Confidence Index was found to be positive and highly significant, indicating that an increase in economic confidence promotes foreign investment inflows. The Geopolitical Risk Index also exhibited a positive and significant coefficient, suggesting that, in certain periods, rising geopolitical risks may encourage short-term capital inflows driven by higher return expectations. The results reveal that economic confidence and geopolitical risk are two critical determinants affecting foreign direct investments in Türkiye.

Conclusion: The findings indicate that foreign direct investments in Türkiye are significantly influenced by both economic confidence and geopolitical developments. An increase in economic confidence strengthens investor expectations and enhances capital inflows, whereas geopolitical risks, in some cases, shape investor behavior through short-term opportunity perceptions. In conclusion, strengthening macroeconomic stability and political trust is of critical importance for ensuring the sustainability of foreign direct investments in Türkiye.

Key Words: Foreign Direct Investment; Economic Confidence Index; Geopolitical Risk Index; Türkiye Economy; Capital Flows

ODOR REMOVAL FROM LAUNDRY WITH AROMA REFRESH TECHNOLOGY AND LONG-LASTING FRAGRANCING WITH SPECIALLY DESIGNED PERFUMES

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Abstract

Introduction and Purpose: This project was developed to effectively remove pet, cigarette, and cooking odors in washing machines, to aerate laundry, and to provide long-lasting fragrancing using specially designed perfumes. Consumer feedback indicates that individuals who keep pets, smoke, or work in kitchens frequently complain about persistent unpleasant odors in their laundry. In the absence of a dedicated washing-machine program that meets this need, users have resorted to ad-hoc solutions, such as adding essences to the softener compartment, which only deliver temporary results.

Research and Discussion: Within the scope of the project, effective methods for removing pet, cigarette, and cooking odors were first investigated; the efficacy of steam, mechanical action, and perfume application was tested. Rather than merely masking odors, the objective was to eliminate them via molecular-level mechanisms such as encapsulation or displacement. To refresh garments without causing wear and to ensure homogeneous fragrancing, a new mechanical design was developed, and machine-specific perfumes were formulated. Literature, benchmarking, and patent research revealed that although there are machines on international markets that claim fragrancing capability, no distinctive solution has been developed in terms of mechanical design. This project, therefore, aims to deliver a product that differentiates itself at both national and international scales. Performance tests analyzed the effects of variables such as steam temperature, steam/perfume dosing duration, mechanical impact, and water amount on odors. In addition, sensory tests and university collaborations evaluated longevity and homogeneous distribution across different textile types.

Results: The main challenges encountered during R&D included the diverse ways in which unpleasant odors bind to different textiles and the variability of user experiences in sensory perception. These issues were addressed through chemical analyses, sensory panel tests, and performance evaluations conducted across multiple textile groups. As a result, the Aroma Refresh program both effectively removed unpleasant odors from laundry and delivered long-lasting, user-pleasing fragrancing with specially designed perfumes. This original technology represents the first comprehensive fragrance program for washing machines and has the potential to establish a new standard in the sector.

Keywords: Aroma Refresh, washing machines, odor removal, fragrancing technology, steam and mechanical action, long-lasting fragrancing.

PROJECT MANAGEMENT FOR SUSTAINABILITY: STRATEGIC PLANNING AND EFFECTIVE USE OF RESOURCES

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Abstract

This article explores the strategic foundations of integrating the sustainability perspective into project management, practical methods that ensure the efficient use of resources, and approaches for monitoring and evaluation. It discusses how to minimize environmental, social, and economic impacts at every stage of the project cycle, as well as the role of stakeholder engagement, circular economy principles, and international standards (such as the SDGs, ISO, and PMI guidelines). The main objective is to demonstrate how sustainable projects can be managed in a cost-effective manner while creating long-term value.

Keywords: Sustainable project management, strategic planning, resource efficiency, circular economy, stakeholder management, ISO 21500, SDG, green project management.

QUANTUM TECHNOLOGY IN MODERN COMPUTING AND COMMUNICATION

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Abstract

Quantum technology leverages quantum mechanics to develop advanced tools in computing, communication, and sensing. Unlike classical systems that use bits, quantum devices use qubits, which exist in multiple states simultaneously due to superposition and entanglement. This enables quantum computers to solve complex problems faster than classical systems, with applications in cryptography, materials science, and artificial intelligence. Quantum communication supports highly secure data transfer through quantum key distribution, preventing unauthorized access. Additionally, quantum sensors offer high precision in navigation, medical imaging, and environmental monitoring. This study discusses the integration of quantum technology into modern electronics to achieve faster processing, secure communication, and enhanced system performance. Quantum advancements are expected to redefine global information processing and connectivity.

Keywords: Quantum Computing, Qubits, Quantum Communication, Superposition, Entanglement

TRADITIONAL ECOLOGICAL KNOWLEDGE: THE MISSING LINK IN BIODIVERSITY CONSERVATION AND SUSTAINABLE DEVELOPMENT

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ABSTRACT

The global pursuit of sustainable development and biodiversity conservation has often been dominated by Western scientific paradigms, yielding insufficient progress against ongoing environmental degradation. Traditional Ecological Knowledge (TEK) of Indigenous and tribal peoples is not merely anecdotal but a cumulative body of knowledge, practice and belief, handed down through generations *via* cultural transmission, concerning the relationship of living beings with their environment. It encompasses sophisticated systems of resource management, climate adaptation and species monitoring that have ensured the sustainability of ecosystems for millennia. The paper explores the intrinsic linkages between TEK and the United Nations Sustainable Development Goals (SDGs), particularly those related to life on land (SDG 15), climate action (SDG 13) and sustainable water management (SDG 6). It should be noted that TEK offers practical, place-based and culturally attuned strategies for conservation, such as controlled burning to prevent wildfires, the protection of keystone species and the cultivation of agrobiodiversity. However, the integration of TEK faces significant barriers, including issues of intellectual property rights, power imbalances in governance and a historical legacy of marginalizing indigenous voices. Thus, a genuine paradigm shift is required which moves beyond tokenistic inclusion towards a model of equitable knowledge co-production. Recognizing and legitimizing TEK is not simply an act of justice for Indigenous peoples; it is an imperative for the resilience and sustainable future of the planet.

Keywords: Traditional Ecological Knowledge (TEK), Biodiversity Conservation, Sustainable Development, Knowledge Co-production

INSULIN RESISTANCE IN THE MANAGEMENT OF DIABETES MELLITUS: STRATEGIES TO INCREASE INSULIN SENSITIVITY THROUGH MEDICAL NUTRITION THERAPY

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ABSTRACT

Diabetes Mellitus (DM) is a chronic metabolic disease that poses a serious threat to global public health. The fundamental pathophysiological feature of Type 2 Diabetes Mellitus (T2DM), the most common form of this disease, is insulin resistance, which develops in peripheral tissues (muscle, fat, and liver) to the biological effects of the hormone insulin. Insulin resistance results in the inability of cells to effectively uptake glucose despite the pancreas producing sufficient insulin, leading to persistently high blood sugar levels. Insulin binds to receptors on cell membranes, activating signaling pathways that allow glucose to enter the cells. In T2DM, adipose tissue dysfunction, particularly associated with central obesity, secretes adipokines (such as leptin), increasing systemic inflammation and insulin resistance. This chronic metabolic imbalance poses serious long-term risks, including major vascular (cardiovascular) and microvascular complications (neuropathy, nephropathy, retinopathy).

Medical Nutrition Therapy (MNT) is one of the most important strategies for managing this complex physiological process. MNT focuses directly on reversing insulin resistance, going beyond supporting the effectiveness of pharmacological treatment. MNT aims to increase insulin sensitivity through a synergistic effect with individualized macronutrient balance (especially the type, amount, and distribution of carbohydrates), weight loss, and regular physical activity. Low-glycemic load dietary approaches positively affect the gut microbiota, reduce inflammation, and contribute to the improvement of insulin signaling pathways.

In conclusion, adherence to MNT in the management of diabetes mellitus significantly improves patients' metabolic control and disease course. This comprehensive assessment, particularly by highlighting specific nutritional strategies aimed at improving insulin sensitivity, is expected to contribute vitally to the prevention of Type 2 DM, the reversal of insulin resistance, and the development of clinical treatment protocols.

Key Words: Insulin Resistance, Medical Nutrition, Type 2 Diabetes Mellitus, Insulin Sensitivity, Glycemic Index, Obesity, Metabolic Syndrome.

SPATIAL COMFORT ANALYSIS IN A BIM ENVIRONMENT: THE INTERACTION BETWEEN LIGHTING AND VISUAL QUALITY

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ABSTRACT

Introduction and Purpose: Sustainability in contemporary architecture is regarded not merely as an environmental responsibility but as a holistic approach encompassing the processes of design, production, and use. In this context, the integration of digital technologies into the architectural design process facilitates the making of sustainable decisions. Building Information Modeling (BIM) provides a powerful analytical tool in terms of energy efficiency, environmental performance, and resource optimization. This study aims to demonstrate how BIM-based analyses can be integrated into sustainability assessments in architectural design.

Materials and Methods: In this study, a sample building model titled "Başıhoş House" was selected, and the building's energy performance was examined in a digital environment. The geometry of the structure was modeled using SketchUp software, and the model was subjected to solar and shadow analyses through the Ecotect plug-in. The analyses were conducted considering different time intervals and seasonal variations; subsequently, the distribution of solar radiation on building surfaces, shadow ratios, and the effects of façade orientations on energy efficiency were evaluated.

Results: The analysis results revealed that the building form and façade design have a decisive impact on energy performance. In particular, south-oriented façades were found to enhance solar gains, while shading elements helped prevent overheating and maintain thermal comfort balance. **Discussion and Conclusion:** The study demonstrates that the use of BIM-based analyses in the early stages of design contributes to decision-making processes that enhance energy efficiency and reduce environmental impacts. This approach provides designers with visual, quantitative, and performance-oriented evaluation tools, proving that sustainable architectural production can be effectively supported through digital technologies.

Key Words: Building Information Modeling (BIM), Lighting, Spatial Comfort, Visual Quality, Sustainable Design

MAPPING GLOBAL TRENDS AND HIGHLIGHTS OF RESEARCH ON ADVERSE EVENTS WITH IMMUNOTHERAPY IN CANCER PATIENTS: A BIBLIOMETRIC ANALYSIS STUDY

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ABSTRACT

Objective: This bibliometric analysis aimed to provide a holistic perspective on published research in the relevant field, focusing on the keywords "Immunotherapy, Cancer Patients, Adverse Events," and to identify the most influential and unstudied topics.

Materials and Methods: This study presents a comprehensive bibliometric analysis using RStudio and VOS viewer programs. The analyses include citation and publication status, author, country, and institution analyses, keyword, thematic, and factor analysis.

Results: 309 studies published in the SCOPUS database between 2000 and 2025 were analyzed. The most cited author was "Gorski L." The most productive author was "Pappot H." The "Journal of Clinical Nutrition Oncology Practice" was the most cited journal, and the "Journal of Clinical Oncology Practice" was the most productive. The United States stood out with its productivity, with "Sorbonne University" being the most cited university. The article "Infusion Therapy Standards of Practice" by Gorski et al. was the most cited study. The most frequently used words on the network map were "immunotherapy, quality of life, cancer."

Conclusion: This research highlights the scope of studies on immunotherapy and its side effects/adverse events in nursing, global trends, and the importance of identifying areas of research need. Expanding the nursing knowledge base and providing a diverse perspective will enable to achieve desired goals in patient care.

Keywords: Immunotherapy; Cancer Patients, Adverse Events; Bibliometric Analysis

A COMPREHENSIVE STUDY ON NANOPARTICLE-ASSISTED MITIGATION OF ARSENIC STRESS IN LEGUMINOUS PLANTS

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ABSTRACT

Arsenic is a toxic heavy metalloid which poses a threat to plants especially to the crops which are mostly consumed by human beings when it's level becomes toxic and detrimental to living organism in the State of Assam and across the World. And later due to high accumulation of arsenic can cause skin diseases like skin cancer. Legumes are the commercial food crop in the State of Assam and across the globe. Arsenic toxicity has adverse effects on seedling growth, root and shoot anatomy, chlorophyll and carotenoid contents of the leguminous plants. The root oxidizability (RO), antioxidant enzyme activities, H2O2 content, lipid peroxidation and electrolyte leakage in legumes also takes place. Researches have been focused on understanding and mitigatating the impact of arsenic on legumes by evaluating various nanoparticles associated with the arsenic transport. From the researches it can be concluded that the ameriolation of arsenic toxicity will be so beneficial for the farmers to grow high yielding leguminous plants with good quality that are harmless to human health. It also highlights the potential of using nanoparticles (NPs) as agrochemicals to alleviate heavy metal (HM) toxicity, improve crop resilience, and promote sustainable, eco-friendly agriculture.

Keywords: Arsenic stress, leguminous plants, nanoparticles, antioxidants, Mitigation.

TUNABLE PEROVSKITE FRAMEWORKS FOR NEXT GENERATION LITHIUM-ION BATTERIES

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ABSTRACT

Perovskite structure compound is emerging as promising candidates for next generation lithium-ion batteries (LIBs) Due to their tunable crystal frameworks, fast lithium-ion transport, and multivalent redox activity. Recent advances demonstrate the versatility of both single and double perovskite as efficient anodes. For example, Lithium-doped titanate perovskite ($Li_{0.5}Ti_{0.5}TiO_3$) delivers high specific capacities (225 $mAhg^{-1}$) with excellent rate capability and cycle stability. Lead-free perovskite ($Na_{0.5}Bi_{0.5}TiO_3$) exhibits a high reversible capacity of 220 mAh g^{-1} at 0.7 V vs Li^{+1}/Li and retains 82% of its capacity after 50 cycles at 100 mA g^{-1}. Double perovskite La_2MnNiO_6 operates around 0.8 V vs Li^{+1}/Li, maintaining 93% capacity retention after 3,000 cycles at 6C, highlighting its exceptional durability. Furthermore, the layered perovskite $Li_2(C_2H_7NO_3S)_2CuCl_4$ achieves outstanding performance, delivering 861 mAh g^{-1} at 0.1 A g^{-1} after 100 cycles and sustaining 548 mAh g^{-1} over 550 cycles at 1 A g^{-1}. These findings underscore the structural flexibility and electrochemical resilience of perovskite frameworks. Ongoing challenges include mitigating structural degradation under high-voltage operation and developing scalable synthesis routes for practical applications. Continued exploration of compositional tuning and interface engineering could enable perovskite-based electrodes to achieve commercial viability in high-energy-density LIBs.

Keywords: Perovskite-based materials; Lithium-ion batteries; Double perovskites; High specific capacity; Cycling stability; Lead-free compounds.

MANIC EPISODE TRIGGERED BY MEDROXYPROGESTERONE ACETATE IN A PATIENT WITH BIPOLAR AFFECTIVE DISORDER

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ABSTRACT

Medroxyprogesterone acetate (MPA) is a synthetic progestin structurally similar to endogenous progesterone, frequently used for menstrual irregularities, contraception, and endometriosis. Although generally considered safe, it may induce neuropsychiatric side effects such as mood changes, irritability, and insomnia. We present the case of a 29-year-old woman with Bipolar I Disorder, in remission for one year under lithium (900 mg/day) and aripiprazole (10 mg/day), who developed an acute manic episode after two days of MPA (5 mg twice daily) prescribed for menstrual irregularity. Shortly after starting MPA, she exhibited irritability, decreased sleep need, pressured speech, increased energy, and grandiosity. On admission, her Young Mania Rating Scale score was 27, and routine laboratory results were normal. She was diagnosed with "Bipolar I Disorder, Medication-Induced Manic Episode" according to DSM-5 criteria. Stabilization was achieved with intramuscular haloperidol (10 mg/day), biperiden (5 mg/day), and oral lorazepam (3 mg/day), while continuing her mood stabilizer regimen. Olanzapine (10 mg/day) was added for maintenance after discharge.

MPA is thought to modulate GABA-A, glutamatergic, and serotonergic pathways, potentially affecting mood regulation. While some reports describe sedative or antidepressant properties of progesterone derivatives, others suggest they may destabilize mood in susceptible individuals. To our knowledge, manic episodes associated with MPA have rarely been reported. This case highlights that even commonly used hormonal agents can precipitate mania in patients with bipolar disorder. Clinicians should exercise caution and maintain close psychiatric monitoring when initiating hormonal therapy in such patients.

Keywords: Medroxyprogesterone Acetate, Bipolar Disorder, Mania, Hormonal Treatment

BURNING MOUTH SYNDROME

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Abstract

Burning Mouth Syndrome (BMS) is a chronic pain condition characterized by a persistent burning sensation of the oral mucosa without visible clinical abnormalities. It is more common in postmenopausal women and is often associated with psychological factors such as anxiety and depression. We present the case of a 64-year-old woman referred to the psychiatry outpatient clinic due to a six-year history of burning mouth pain and altered taste perception, particularly severe in the morning hours. No medical or dental pathology was identified through otolaryngologic or laboratory evaluation.The patient's initial assessment revealed anxious affect, increased psychomotor activity, and no perceptual disturbance. Her Beck Depression Inventory (BDI) score was 17, indicating mild depressive symptoms, and her Hamilton Anxiety Rating Scale (HAM-A) score was 22, consistent with moderate anxiety. Pharmacological treatment was initiated with duloxetine 60 mg/day and pregabalin 150 mg/day, targeting both neuropathic and affective components of the syndrome. Additionally, the patient participated in eight sessions of supportive psychotherapy focusing on stress management and relaxation techniques.After two months, the patient reported a marked reduction in oral burning intensity and anxiety symptoms. BDI and HAM-A scores decreased by more than 50%, indicating significant clinical improvement.BMS is a multifactorial condition involving neuropathic, hormonal, and psychological mechanisms. This case highlights the importance of evaluating psychiatric comorbidities and addressing both psychological and neuropathic dimensions in treatment. A multidisciplinary approach integrating pharmacotherapy and psychotherapy can yield favorable outcomes and enhance quality of life in patients with BMS.

Keywords: Burning Mouth Syndrome, Anxiety, Depression, Duloxetine, Pregabalin, Supportive Psychotherapy

IMPROVE THE COEFFICIENT OF FRICTION OF THE HYBRID IRON MATRIX COMPOSITE BY ADDING GRAPHITE NANOPARTICLES

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Abstract

Iron matrix composites (IMCs) constitute an advanced category of materials that integrate Iron matrices with reinforcing phases such as oxides, ceramics, or other high-performance compounds to achieve superior mechanical and thermal properties compared to conventional metals. These materials offer a unique combination of high strength, enhanced stiffness, improved wear resistance, and excellent thermal stability, while preserving the inherent low density of the metal matrix.

In the present study, an iron-based metal matrix composite was developed using 97% volume pure iron powder as the matrix and 3% volume reinforcement composed of a hybrid mixture of aluminium oxide (Al_2O_3) and zirconium oxide (ZrO_2) powders in an 80:20 volume ratio and 1% of nano-Graphite. The iron powder, with 98% purity and an average particle size of approximately 100 μm, served as the base material. Both Al_2O_3 and ZrO_2 powders had average particle sizes of about 10 μm. Zirconium oxide, widely used in ceramics, abrasives, and metalworking applications, was chosen for its excellent mechanical strength and thermal stability. The composite specimens were fabricated via powder compaction, where the blended powders were uniaxially pressed in a vertical die at a pressure of 650 MPa and room temperature for half an hour using a hydraulic press. The green compacts were intered at 1120 °C for a holding time of half an hour.

The coefficient of friction of pure iron decreased by approximately 1.6% when reinforced with 3 volume% of a ceramic hybrid consisting of 80 vol% Al_2O_3 and 20 volume% ZrO_2. Furthermore, when the iron matrix was reinforced with 3 vol% of the same ceramic hybrid along with an additional 1 volume% of nano-graphite particles, the coefficient of friction exhibited a more significant reduction of about 10%, indicating the synergistic effect of the ceramic–nano graphite hybrid reinforcement in enhancing the tribological performance of the composite.

Keywords: Iron matrix, graphite, nanoparticles, coefficient of friction

TABA SPRAY MASK: A PROPOSED INNOVATIVE MOISTURIZING SOLUTION FOR ICHTHYOSIS PATIENTS

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ABSTRACT

Introduction and purpose: Ichthyosis is a chronic hereditary skin disorder characterized by severe dryness, scaling, and thickened skin, leading to discomfort and negatively affecting patients' quality of life. Current treatment rely mainly on creams and ointments that require frequent application and often leave a greasy residue, reducing patient compliance. This proposal aims to introduce an innovative concept- the TABA SPRAY MASK, a theoretical model of a film-forming moisturizing spray designed to improve skin hydration, relive itching, and enhance comfort for ichthyosis patients.

Materials and Methods (Proposed Design and Concept): The TABA SPRAY MASK is proposed as a transparent, breathable, therapeutic mask that forms directly upon spraying onto the skin. The proposed design focuses on ease of use, rapid absorption, and uniform distribution.

Expected Results: TABA SPRAY MASK is expected to provide long-lasting hydration, relive itching, and form a stable, flexible layer on the skins surface.

Discussion and Conclusion: TABA SPRAY MASK can provide a convenient, effective, and quick way to moisturize the skin. Future studies are recommended to determine its formulation, safety, and clinical efficacy.

Key words: Ichthyosis disease, hereditary skin diseases, spray mask, moisturizing the skin, TABA SPRAY MASK.

THE CONSTRUCTION OF FAMILY IN THE HYPERREAL WORLD OF TURKISH TELEVISION SERIES: THE EXAMPLE OF 'KIZILCIK ŞERBETİ'

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ABSTRACT

This study focuses on the ways Turkish television series construct the institution of family with the aim of presenting how they could generate a social & cultural harm for Turkish society as they seem to be far from reflecing what it is real out there. That is, depending on the literature, families in the Turkish series could be observed to be constructed in either an idealizing and glorfying way or in a betrayel-centric or intrigue-driven one in which family members constantly betray and compete each other. Bearing in mind the fact that popular culture is never a neutral site and it has a great impact upon (re)shaping, (re)constructing, and (re)orienting individuals' worldviews; and employing Baudrillard's simulacra/simulation as the theoretical framework, this study aims to examine and indicate that the concept of family presented in Turkish television series are works of hyperreality. Within this purpose, as it constantly either glorifies or erodes family, the study analyzes the series named 'Kızılcık Şerbeti', one of the most popular and controversial one in Türkiye lately. Studying the show through Fairclough's thematic textual discourse analysis and analyzing the construction of family with a close-reading, the study concludes that the show does not only create a hyperreal world where the concept of family is experienced in highly extreme and unreal ways but also stands as a negative point of reference affecting its viewers' ways of acknowledging and interpretation of family.

Key Words: Family, Hyperreality, Television Series Named 'Kızılcık Şerbeti'

THE EFFECT OF THE DIGITALIZATION PROCESS ON VIRTUAL ADDICTION AND FAMILY RELATIONSHIPS

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ABSTRACT

Introduction and Purpose: This study examines the micro and mezzo-level impacts of digital culture and digital technologies. Today, digital technologies are used extensively in every aspect of life, from education to art, from the defense industry to household appliances. Digital technologies add comfort to individuals' lives but also create a relationship of dependency. On the other hand, it also affects and transforms the family, one of the most deeply rooted social institutions. This study aims to discuss the effects of the culture that comes with digital technologies on the individual and the family.

Materials and Methods: This study was conducted using a qualitative research methodology. Studies in the literature were analyzed and interpreted using the document analysis technique. In particular, the impact of digital technologies on individual behavior and family relationships has been evaluated, drawing on personal observations.

Results: The relationship that people establish with digital technologies does not always contribute to their comfort and life. This relationship sometimes turns into addiction and negatively affects the individual's emotional state, mental capacity, health and social abilities. In this context, family relationships also turn into secondary interactions and family ties weaken. Therefore, the relationship between digital technologies and culture and humans should be discussed in all its aspects.

Discussion and Conclusion: Digitalization is a process that develops rapidly in the 21st century and creates consequences for all societies. It is not possible to remain outside this process in any area. There is a race in the world to be a pioneer in the production of digital technologies and to use them in different fields. However, the relationship between digital technologies and digital culture and people and society has been less discussed. Studies on the impact of digital technologies on individual behavior, health, and way of thinking reveal that the process does not always develop in favor of people. Intensive use of digital technologies can break an individual's connection with reality. Similarly, family relationships are also facing radical transformation. Thus, family ties are broken and the family's functions such as privacy, protection and being the carrier of social values are lost.

Key Words: Digital technology, Virtual addiction, Family relations, Individual behavior, Society

THE RELATIONSHIP BETWEEN CREDIT RISK PREMIUM AND YOUTH UNEMPLOYMENT RATE: THE CASE OF TÜRKİYE

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ABSTRACT

The causality relationship between the credit default swap premium and the youth unemployment rate provides a significant framework in the Turkish economy for revealing how changes in financial risk perception affect employment conditions and to what extent developments in the labor market are reflected in market risk. Given this importance, this study examines the time-varying causality relationship between Türkiye's credit risk premium and youth unemployment rate using monthly data over the period 2013:02–2025:06. The results indicate that there is no causality running from the youth unemployment rate to CDS whereas a unidirectional causality from CDS to youth unemployment is detected during the period 2024:11–2025:03. This episode corresponds to a phase in which Türkiye experienced a rapid decline in its risk premium, an increase in interest rate pass-through, and the reactivation of the financial transmission mechanism.

Keywords: Credit Risk Premium; Youth Unemployment Rate; Labor Market; Türkiye; Time Varying Causality.

ENTREPRENEURSHIP AND ECONOMIC GROWTH: A CROSS-COUNTRY EMPIRICAL ANALYSIS

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Abstract

Entrepreneurship, the process of starting and running businesses, is a key driver of economic growth and innovation. Entrepreneurs fuel dynamic Schumpeterian competition and overall economic dynamism. This paper advances the literature by using a cross-country empirical analysis with the Generalized Method of Moments (GMM) to examine the relationship between entrepreneurship and economic growth. We distinguish between opportunity-driven and necessity-driven entrepreneurship and explore their interaction with institutional factors like the rule of law and property rights, considering differences between advanced and developing economies. Our findings reveal that opportunity-driven entrepreneurship has a positive and significant impact on economic growth, particularly in innovation-driven sectors. Economies with more opportunity-motivated entrepreneurs experience stronger growth. Additionally, the positive effects of total early-stage and necessity-driven entrepreneurship are more evident in countries where the industrial sector holds a larger economic share. Overall, the study highlights the importance of differentiating types of entrepreneurship and recognizing the role of sectoral composition in growth outcomes. These insights suggest that policy frameworks should be tailored to foster opportunity-driven entrepreneurship while accounting for institutional settings and economic structures to effectively promote sustainable economic growth.

Keywords: entrepreneurship, economic growth, development

JEL Codes: L26, M13, O47

INDEX PROPERTIES OF WEAK LATERITIC SOIL STABILIZED WITH LIMESTONE POWDER AND SAND

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ABSTRACT

This study aims to improve the engineering properties of weak lateritic soil for construction purposes through stabilization with limestone powder and sand. Lateritic soil was collected from a borrow pit in Kaduna Metropolis, while limestone powder and sand were sourced from a local quarry and a construction site at AFIT Campus, respectively. Laboratory tests, including sieve analysis, Atterberg limits, and compaction tests, were conducted on untreated and stabilized soil samples. The soil was classified as A-6 (clayey soil) under AASHTO and CL (lean clay) under USCS, with more than 35% passing the No. 200 sieve and Atterberg limits of LL = 31.1%, PL = 15.48%, LS = 10.71%. Stabilization was carried out by separately adding sand (0%,2%, 4%, 6%) and limestone powder (0%,5%, 10%, 15%), as well as a combined stabilization in a 4×4 matrix format, resulting in 16 different sample variations. Results showed that 2% sand (2%SD) alone increased the optimum moisture content (OMC) from 15.75% to 18.59%, while the best OMC improvement in mixed stabilization occurred at 2%SD and 5%L, increasing from 15.57% to 16.1%. The maximum dry density (MDD) was highest at 2%SD and 10%L, while the best Atterberg limit improvements were observed at 4%SD and 5%L. Overall, the optimal stabilization mix was 2% sand and 5% limestone powder, striking a balance between strength and workability. This study recommends the use of sand and limestone powder as effective stabilizers for improving lateritic soil for construction applications.

Keywords: Stabilization, Lataritic soil, Limestone powder, Sand

URBAN FARMING: THE FUTURE OF SUSTAINABLE FOOD PRODUCTION

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Abstract

Urban farming has emerged as a key solution to the growing challenges of food insecurity, climate change, and rapid urbanization. As global populations continue to migrate toward cities, the demand for fresh, locally grown food has increased significantly. Urban farming utilizes innovative techniques such as hydroponics, aquaponics, vertical farming, and rooftop gardening to cultivate crops within city environments. These methods require less land, water, and energy compared to traditional agriculture, making them highly sustainable and resource-efficient. Urban farming not only supports local food production but also reduces the environmental impact associated with long-distance food transportation and storage. By bringing agriculture closer to consumers, it minimizes carbon emissions, food waste, and packaging materials. Furthermore, urban farming enhances food security, promotes biodiversity, and transforms unused urban spaces into productive green zones that improve air quality and aesthetics. Socially, it fosters community participation, creates employment opportunities, and encourages healthy eating habits. It also serves as an educational platform to raise awareness about sustainable living. The integration of smart technologies—such as IoT-based monitoring systems and automated nutrient delivery—enhances productivity and efficiency. In the long term, urban farming holds immense potential for reshaping sustainable food systems, contributing to resilient cities and self-sufficient food production.

Keywords: Urban Farming, Sustainable Agriculture, Food Security, Vertical Farming, Hydroponics, Climate Change

MORPHO-ANATOMICAL, PHYSIOLOGICAL AND BIOCHEMICAL RESPONSES OF WHEAT (TRITICUM AESTIVUM L.) VARIETIES TO DROUGHT STRESS, REWATERING, AND EXOGENOUSLY APPLICATION OF COPPER OXIDE NANOPARTICLES

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Abstract

Drought is a major constraint to crop productivity, severely affecting wheat growth and yield by disrupting morphological, physiological, and biochemical processes. This study investigated the role of exogenously application of (CuO-NPs) and rewatering in mitigating drought stress in two wheat varieties, Dilkash-20 and Nawab-20, under a completely randomized design with four treatments (control, drought, rewatering, and exogenously application of CuO-NPs. Drought stress significantly reduced plant height, biomass, relative water content, chlorophyll concentration, and nutrient uptake. Rewatering and CuO-NPs application alleviated these effects, improving growth, pigment stability, and water balance. CuO-NPs enhanced shoot and root growth and photosynthetic efficiency, contributing to better stress tolerance. Dilkash-20 exhibited higher drought tolerance and stronger response to CuO-NPs, whereas Nawab-20 showed improved recovery after rewatering. Overall, the combined use of CuO-NPs and rewatering represents a promising strategy to enhance wheat performance under water-deficit conditions.

Keywords: Wheat (*Triticum aestivum* L.), Drought stress, Rewatering, Copper oxide nanoparticles (CuO-NPs), Drought tolerance.

FIRST-PRINCIPLES INSIGHTS INTO TIFE AND TIFEHX (X = 1, 2, 4) FOR SOLID-STATE HYDROGEN STORAGE

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Abstract

We investigate TiFe and its hydrogenated derivatives, TiFeH, $TiFeH_2$, and $TiFeH_4$, using density functional theory (DFT) to evaluate their potential as solid-state hydrogen storage materials. Structural, mechanical, electronic, thermodynamic, vibrational, and optical properties were analyzed using the Quasi-Harmonic Approximation (QHA) and Density Functional Perturbation Theory (DFPT) frameworks. Hydrogenation induces lattice expansion and symmetry reduction while preserving mechanical and vibrational stability, as confirmed by the Born criteria and phonon spectra free of imaginary modes. All $TiFeH_x$ compounds are thermodynamically favorable and ductile. A temperature-dependent Gibbs free energy approach was used to estimate desorption behavior, yielding desorption temperatures of approximately 450 K for TiFeH, 510 K for $TiFeH_2$, and 557 K for $TiFeH_4$ under 10 bar H_2 pressure. $TiFeH_4$, in particular, offers a gravimetric hydrogen capacity of 3.74 wt%, highlighting its promise for high-capacity storage. Additionally, hydrogen incorporation modifies the dielectric response and enhances optical absorption, suggesting potential for complementary functionality in thermal regulation and hydrogen sensing applications. These findings provide predictive insight into the design of stable, efficient TiFe-based hydrides and offer theoretical guidance for future experimental development.

Abstract with details as the committee recommends.

Purpose: To evaluate TiFe and its hydrides $TiFeH_x$ (x = 1, 2, 4) as candidates for solid-state hydrogen storage by combining first-principles calculations with lattice-dynamical and thermodynamic analysis. We aim to clarify how hydrogenation alters structure, elasticity, vibrations, and optical response, and to provide predictive guidance for experiments.

Materials and Methods: Density-functional theory (DFT) with full structural relaxation was used for TiFe, TiFeH, $TiFeH_2$ and $TiFeH_4$. Elastic constants were checked against Born stability criteria. Phonons were computed using density-functional perturbation theory (DFPT). Finite-temperature effects were included using the quasi-harmonic approximation (QHA) to obtain Gibbs free energies and to estimate H_2 desorption temperatures at 10 bar.

Findings: Hydrogenation expands the lattice and reduces symmetry while preserving mechanical and dynamical stability (no imaginary phonons). All TiFeHx phases are thermodynamically favorable and ductile. Temperature-dependent Gibbs free-energy differences indicate characteristic desorption temperatures of ~450 K for TiFeH, ~510 K for $TiFeH_2$ and ~557 K for $TiFeH_4$ at 10 bar H_2. $TiFeH_4$ delivers a gravimetric capacity of ~3.74 wt%. Hydrogen incorporation also tunes dielectric response and enhances optical absorption, suggesting utility for thermal regulation and hydrogen sensing in addition to storage.

Conclusion: TiFe-based hydrides emerge as promising, stable materials for solid-state hydrogen storage with tunable functional properties. The DFT/DFPT/QHA framework provides quantitative targets—stability, capacities, and desorption ranges—that can guide experimental validation and the design of next-generation TiFeHx systems.

Keywords: TiFe hydrides; hydrogen storage; DFT/DFPT; quasi-harmonic approximation; thermodynamics; phonons; optical properties.

ENSURING ELECTROMAGNETIC COMPATIBILITY AND POWER SUPPLY RELIABILITY OF THE GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS) IN EMERGENCY SITUATIONS

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Abstract

The article addresses the problem of ensuring electromagnetic compatibility (EMC) and power supply reliability of the Global Maritime Distress and Safety System (GMDSS) in emergency situations. Modern shipping increasingly relies on densely integrated radio-electronic systems, high-power antennas, and satellite communication channels, creating complex electromagnetic environments. This study proposes innovative approaches based on intelligent power management, digital twins for electromagnetic modeling, and integrated real-time monitoring of EMC and interference protection. The results demonstrate enhanced reliability and resilience of GMDSS systems, ensuring continuous communication and compliance with international safety standards (SOLAS, IEC, ITU, IMO GMDSS). Practical applications include ship system design, national standards development, and maritime education.

Keywords: Electromagnetic compatibility (EMC), GMDSS, power supply reliability, maritime communication systems, digital twins, emergency situations, shipboard electronics.