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ABSTRACT

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Keywords: Science , Technology , DECC , Iran

Investigation of the effect of tea seed saponin (*Camellia sinensis*) against the snail pest (*Cornu aspersum*) in lettuce fields in Gilan province

Dina Pourali[1,*] - Mohana Arshadi [2] - Niloofar Haghi [3]

[1] Researcher and High School Student of Farzanegan Rasht Upper Secondary School, Gilan, Iran (NODET)

dinapurali11@gmail.com

[2] Researcher and High School Student of Farzanegan Rasht Upper Secondary School, Gilan, Iran (NODET)

mohana.arsh2007@gmail.com

[3] PhD in Biology, Department of Biology, Faculty of Basic Sciences, University of Gilan, Iran.

haghi.niloofar.marine@gmail.com

ABSTRACT

The garden snail (Cornu aspersum) is one of the most important terrestrial mollusks in fields and gardens, causing significant damage to agricultural crops annually. Although it has been somewhat controlled by various methods such as metaldehyde and thiodicarb pesticides, these substances can have harmful effects on human health and the environment in the long run, as well as contribute to increased resistance of pests to chemical pesticides. The aim of this research was to biologically control this pest using saponin extracted from tea seeds. For this purpose, 120 garden snails were collected from gardens in Gilan province and placed in 60 containers in the laboratory of Farzanegan High School in Rasht. Each container randomly contained two snails. The containers were divided into six groups of ten and sufficient amount of lettuce was placed in all containers. Then, each group was treated with a different substance. The treatments included water as a positive control, 6% metaldehyde as a negative control, solid saponin, 20% saponin solution, 50% saponin solution, and 70% saponin solution, with ten replicates for each treatment. The behavior of the snails and the amount of consumed lettuce were observed for 72 hours, and factors such as the snails' physical condition and maintenance of their natural weight were examined to determine the number of live and healthy snails. Finally, the obtained biological data were analyzed using SPSS software version 27. The results of the ANOVA test showed no significant difference between the effectiveness of tea seed saponin and metaldehyde pesticide. Therefore, tea seed saponin may be a suitable alternative to metaldehyde pesticides for controlling these pests.

Keywords: biological control, cabbage fields, *Cornu aspersum*, metaldehyde, tea seed saponin

Exploring the resource management solutions of Internet of Things applications in the environment of the fog computing

Ali Gholami1, Muhammad Faraji Mehmandar2, Asghar Darigh3

1-Computer Engineering Department of Information Technology Engineering of the Islamic Azad University of Parand, Parand, Iran Info.aligholami@gmail.com

2-Faculty of the Islamic Azad University of the Islamic Azad University of Parand, Parand, Iran Faraji_74@yahoo.com

3-Faculty of the Islamic Azad University of the Islamic Azad University, Parand, Parand, Iran, A.darigh@gmail.com

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Abstract

The efficiency of the random forest algorithm for timing and load balancing in the Internet of things Environment-cloud computing with the increasing growth of the Internet of things, the need for efficient methods for timing and load balancing in the Internet of things Environment-cloud computing has increased. The simulation was carried out in the MATLAB environment with 200 nodes the random forest algorithm was compared with the optimal CPOP heft and heft algorithms. The simulation results showed that the random forest algorithm performed better in timing and load balancing fields compared to other algorithms.

Keywords: fog riding, random forest algorithm, resource management.

Digital Transformation in Governments: Foresight and Implementation Challenges of E-Government

Mahyar Zahraby

Independent Researcher:

mahyarzahraby.biz@gmail.com

Abstract

This article examines the necessity and benefits of e-government and analyzes how to manage its drawbacks. By conducting a case study of e-government in Estonia, we assess the successes and challenges of its implementation. Additionally, we analyze the management of billions of people with China's approach and the impact of digitalization in Singapore, focusing on digital culture. The research methodology of this article includes qualitative analysis and case studies based on secondary data from reliable sources. The results show that e-government, as a powerful tool, can help reduce costs, increase efficiency, strengthen public trust, and promote civic culture. These three countries, with their unique approaches, demonstrate that e-government can meet various community needs and set them on the path to progress.

Keywords:E-Government, Digital Innovation, Digital Surveillance, Artificial Intelligence in Government, Digital Culture, Government Transparency, Digital Government, Online Public Services, Data Management, Government Digitalization.

IoT Malicious Traffic Classification and Detection Using Machine Learning Algorithms

Seyyed Mohammad Ali Abolmaali[a,*] - Reza Mohammadi[a] - Mohammad Nassiri [a]

[a] Department of Computer Engineering, Engineering Faculty, Bu-Ali Sina University, Hamedan, Iran

ABSTRACT

The Internet of Things (IoT) is one of today's most rapidly growing technologies. The exchange of data between IoT devices generates a large amount of information that needs to be shared. There is a potential for security breaches in these communications, which could be deliberately damaging to the connected devices. It is crucial to detect and deal with unauthorized communication and security breaches in order to avoid further harm and repercussions. The goal of this project is to differentiate deliberate communications from unsecure communications among the IoT devices. Different patterns can be observed in intentional communications compared to insecure communications. Machine learning based on artificial intelligence can be used to detect these patterns in intentional and insecure communication.

In this The paper utilizes Random Forest, Decision Tree, and SVM to differentiate between patterns associated with intended and unintended messages. The performance of the machine learning approach proposed was evaluated by utilizing the Aposemat IoT-23 dataset, and it achieved a 99.25% accuracy when compared to the benchmark dataset. It is found that the suggested Random Forest approach performs better than the current ones when there are enough patterns to recognize. A potential solution to be applied on this dataset is also explored and proposed in order to improve the performance of the underperforming classifiers on the imbalanced dataset. Employing machine learning models makes it possible to detect and mitigate IoT malware threats, ultimately safeguarding the integrity and privacy of IoT devices and networks. This paper contributes to the growing body of knowledge in IoT security and provides a foundation for further research in this critical domain.

Keywords: IoT Devices, Machine learning, Artificial Intelligence, Traffic classification, Malware Analysis, IoT Security

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Radar Target Classification Using Fuzzy System Method

Mojtaba Eshrati1, Abbasali Ebrahimi Nia2, Younes Poladrang3

1- m.eshrati2015@sharif.edu

2- abbasali.ebrahiminia@gmail.com

3- poladrang@gmail.com

ABSTRACT

Each radar target has specific motion characteristics, including minimum and maximum velocity and acceleration. Based on these characteristics, the classification process is performed. By sending and receiving waves toward the targets, the radar can extract kinematic features as well as features related to their shape and form. In the present study, to optimally use the feature space, kinematic information and target shape features, such as radar cross-section, have been exploited for classification. This approach allows us to identify and analyze different targets more accurately, which will ultimately help improve the performance of radar systems. With this method, we can achieve better results in target identification and tracking and at the same time, increase the efficiency of radar systems. In this study, the fuzzy system classification method has been used to design the classification algorithm. Finally, the designed algorithm is used to classify five radar targets, including drones, fighter aircraft, bombers, helicopters, and cruise missiles. To use the designed algorithm, a graphical interface has been designed to easily load input data into the software and run the classification algorithm. Simulation results show that the designed algorithm has acceptable accuracy and is still capable of correctly classifying radar targets in the presence of noise in the inputs, which indicates the algorithm's resistance to noise.

Keywords: Classification, radar targets, fuzzy system, range index function, fuzzy system, kinematic characteristics, radar cross-section.

Improving the quality of urban spaces with a tactical urban planning approach

Mahshid Hajimaqsoodi[1]

1- Senior expert in urban design, mahshidhajimaghsoudi79@gmail.com

ABSTRACT

Urban spaces are the platform where human and social behavior and activities are formed and the cultural relations of people and social groups are established with each other. Urban spaces are actually the scene of public and living urban activities, therefore, parks, streets, squares of a city are the main elements of urban spaces, in this regard, tactical urban planning seeks to achieve the active participation of citizens in the recovery and redesign of small urban spaces, quickly and efficiently. Improving people's sense of belonging to urban environments. The purpose of this research is to identify the quality components of urban space, to upgrade them in order to improve the performance of spaces; On the other hand, it is to identify the tactical approach and current indicators for implementation in urban spaces. The research method is descriptive-analytical, study of national and international articles, books and theses, field studies and evaluation of projects carried out by this approach. The results are that the quality components of the urban space are: light, colour, sidewalk width, furniture equipment, environmental factors, which are accompanied by a tactical approach, which are micro-scale factors, early yielding and accompanied by public opinion and participation.

Keywords: improving the quality of urban space, tactical urbanism, urban space, social interactions.

Recognition the Role of the Lotus Flower in Meaningful Architecture in Eastern Countries

Mosallanejad Nilufar

1-daneshjuye karshenasi ershod manpandesi memari,moseseh amuzesh ali ghir entefayi andisheh joharam (Mosallanejadnilufar@gmail.com)

Abstract

The lotus flower, a symbol of spiritual and cultural significance in Eastern countries—particularly Asian societies—is a flower that carries a deeper meaning than botanical beauty. The following essay examines the significant role played by the lotus in the context of grand architectural projects. The lotus, or water lily, was greatly esteemed in ancient Iran, where it symbolized purity, enlightenment, rebirth, and spiritual development in numerous artistic, literary, and architectural traditions. In Eastern traditions, the lotus symbolizes fertility, strength, and a nurturing nature that is in harmony with all forms of life. It also symbolizes the ideals of peace, beauty, and love and hence establishes itself as an essential element in significant architectural works. The objective of this study is to explore the role and meaning of the lotus and illustrate its architectural influence. The

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lotus, as a symbol of purification and rebirth, is employed in the majority of sacred and public spaces, promoting an environment that instills a sense of calmness and reflection. A broad variety of architectural samples underscores the application of the lotus motif, such as Buddhist and Hindu temples and traditional Persian gardens. This paper constitutes mostly library-based research coupled with a detailed examination of the architectural significance of the lotus, complementing this research further with visual images. It subsequently delves into the conceptualization of the lotus in conjunction with significant architecture, emphasizing its profoundly ingrained impact on the subconscious mind and human psychology. By connecting the lotus's cultural and architectural meaning, this paper will clarify its persisting heritage and ability to encourage a profound sense of connection to both the surroundings and oneself.

Keywords: Lotus, meaningful architecture, symbolism.

Green Infrastructure in the 15-Minute City: Ecological Resilience and Urban Sustainability

Hadi Aboulfazli1, * - Fariba Rostami2 -Roza Vakilinezhad3

1, * Khayyam University, Mashhad, Iran

2 University of Maryland Eastern Shore, Maryland, USA

3 Shiraz University, Shiraz, Iran

ABSTRACT

Nowadays ecological and social challenges of cities make sustainable urban planning frameworks increasingly essential. This research addresses a need to respond to critical urban issues of biodiversity loss, urban heat islands and carbon sequestration simultaneously while improving the livability and sustainability of cities.This study uses a review-based methodology to investigate the relationship between Green Infrastructure (GI) and the 15-minute city framework. The review was rooted in a large document foundation gained through a comprehensive literature search from sources such as databases like Google Scholar, ScienceDirect and Springer. It identifies key concepts, challenges, and opportunities in urban planning, environmental design and climate adaptation through a review of scholarly literature, policy documents and case studies. The study explores how GI can improve the 15-minute city model, using global examples such as Paris, Melbourne and Portland. Sustainable urban land use strategies are shown by initiatives such as Melbourne's "Grey to Green" project and the "Green Factor" tool. The research also considers emerging tools such as GIS-based systems and participatory planning models for addressing equity challenges and precluding green gentrification. GI's environmental and social benefits, including mitigating urban heat islands, conserving biodiversity, and increasing carbon sequestration are evaluated alongside its social benefits, including fostering social interactions, reducing stress and increasing mental health. These effects are quantified using ecosystem service evaluation frameworks. The study compares selected cities and identifies best practices and scalable strategies for integrating GI into dense urban environments. This review synthesizes literature and case studies to offer actionable insights for improving GI in 15-minute cities, including strategies to improve ecological resilience, social equity, and measuring environmental and societal impacts.

Keywords: 15-minute city, Green Infrastructure (GI), Sustainability, Urban resilience, Social equity

The ups and downs and outcome of the Islamic Revolution Mojahedin Organization

Ali Asghar Rajabi, Daniel Davoudi

. Ali Asghar Rajabi ،Assistant Professor, Department of History, Khwarazmi University, Ministry of Science and Research- aliasgharrajabi@khu.ac.ir

. Daniel Davoudi ،Master's student in the history of the Islamic Revolution, Kharazmi University, Ministry of Science and Research - davoodidaniel@gmail.com

Abstract

This research is trying to take into account the special conditions of Iran at the beginning of the establishment of the Islamic Republic under the leadership of Imam Khomeini (RA) and to address one of the important Islamist parties, while briefly pointing out how and why the Mujahideen Organization of the Islamic Revolution emerged and the process of its activities. organization to be paid from 1358 to 1365; Among the most important activities that have been discussed are 1- the declaration of the organization's activity on 1/16/1358 2- the arrest of Mojtaba Taleghani 3- the establishment of the Guards Corps 4- the capture of a spy nest 5- the first presidential election 6- the confrontation with Fargan's gang 7 - Fighting separatist groups 8- The first election of the Islamic Council 9- The second presidential election 10- The explosion of the prime minister's office 11- The third presidential election 12- The polarization of the Imami line during the prime ministership of Mirhossein Mousavi and the role of the members of the Revolutionary Mojahedin Organization Islamic in this polarization 13- Internal differences of the Mujahideen of the Islamic Revolution and its causes 14- Factions of this organization 15- Migration of organization members to the armed forces 16- Group resignation of organization members 17- Dissolution in history (7/7/1365). Apart from the ups and downs of the organization mentioned in this research, it has been tried to 1- What are the intellectual foundations of the organization 2- The organization's

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point of view about the constitution 3- The organization's thought about the beginning of Islamic movements 4- The organization's point of view about armed struggles 5- The organization's point of view about the Islamic government, be paid

Keywords: Iran, Imam Khomeini, Islamic Republic, Mujahideen of the Islamic Revolution, Islamism.

The Importance of Laws, Regulations, and Conservation in the Field of Natural Resources and National Lands

fahimeh hosseinpour 1, mohammad saddeq hosseinpour 2,

1- BSc Student in Law, Payam-e Noor University, Mahabad Branch, Iran

2- MSc in Agricultural Engineering, Khoy Branch, Islamic Azad University, Iran - Official Expert of the Judiciary

mohamad_sadigh@yahoo.com

Abstract

The conservation of natural resources and national lands is beyond a mere environmental concern. It encompasses economic stability, cultural integrity, social justice, and global health. As we face increasing environmental challenges such as climate change and biodiversity loss, it is essential to adopt sustainable practices that ensure the longevity of our planet's resources. If we prioritize the conservation efforts now, we can lay the groundwork for a healthier planet for future generations.

Keywords: Conservation, Natural Resources, National Lands, Economic Stability, Cultural Integrity, Social Justice, Global Health

Comparison of the risk consequences of leaks at the top and bottom of a 5000 liter pressurized reactor of 1-3 butadiene using PHAST and WISER software

Hamid Isarinia1,* -Abdol Rahman Keshvary 2

1 Imam Hossen University researcher

2 Associate Professor -Imam Hossen University

ABSTRACT

1,3-Butadiene is a widely used material in industry. This material is used as a raw material for the production of various types of rubber, polymers, and solid space propellant based on HTPB. Tanks of this material are usually placed in very large volumes on sites in the industry. In this article, two leakage patterns from the top of the tank due to the operation of the safety valve or damage to the loading pipes and the leakage pattern from the bottom of the tank are examined. The results show that leakage from the top of the tank has a higher risk radius and more measures must be taken in the upper part of the tank, including preventing direct leakage of the safety valve into the environment and creating protective guards in the upper parts. Also, according to the fire radius, a suitable location for hydrant valves can be found.

Keywords: PHAST, WISER, modelling, fire radius, explosion probability,

Unified Modeling Framework for Dynamic Analysis of a MEMS Resonant Biosensor

Ali Selk Ghafari, Ph.D.1,*

1 Assistant Professor, Sharif University of Technology International Campus, Kish Island, Iran.

ABSTRACT

Utilizing mathematical modeling is crucial in comprehending and foreseeing the actions of MEMS components, reducing time and expenses in their creation. Modeling and simulating MEMS structures and physical phenomena is difficult because of their complexity. The research goal is to suggest a comprehensive modeling framework using bond graph method for MEMS biosensors, enabling the prediction of device performance and validation of characteristics prior to manufacturing. Simulation results are in good agreement with the experimental investigation for both transient and steady state responses. This method allows for flexibility in system-level modeling by merging specific simulation outcomes to form a thorough device model.

Keywords: dynamic, MEMS, biosensor, resonant, modeling

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The role of Airport Collaborative Decision-Making in monitoring and managing air traffic in all flight phases

Mohsen Kazemi , Morteza Assadiyan ,Mohammad Mahdi Dehghan Tazarjani ,Farhad Hanafiyan

1 Master's degree in Telecommunication Engineering, deputy director of Electronic Engineering department of Mehrabad airport and professor of Civil Aviation Technology College

2 Bachelor student of Aviation Electronics Engineering, Civil Aviation Technology College

3 Bachelor student of Aviation Electronics Engineering, Civil Aviation Technology College

4 Master's degree in Telecommunication Engineering, Director of Non-academic programs of Civil Aviation Technology College

ABSTRACT

In this research, the analysis and investigation of one of the issues of the world aviation day called A-CDM, which is coordination techniques and collaborative decisions and information sharing to improve some important issues of the aviation industry, including managing airport operations and increasing performance and reducing delays, which is one of the most important issues. And it leads to satisfaction in all dimensions and even environmental advantages.

Also, this issue of collaborative airport decision-making is part of the global air navigation program. which is considered based on the coordinated implementation of Blocks 0 and 1 of ICAO Document 9750, Fourth Edition, which was approved by the Global Aviation Industry Research Review Committee in July 2019.

Its purpose was to improve the efficiency and flexibility of airport operations, which optimizes the use of resources and improves the predictability of air traffic. This is done by encouraging airport partners (airport operators, aircraft operators, ground handlers and air traffic controllers) and network management to work more transparently, collaboratively and share accurate and timely information.

Keywords: TOBT, TSAT, Airport, ANSP, ATM, CUUPS

Investigating the Influence of Inlet Conditions on Flow Dynamics and Afterburner Performance

Mohammad Reza Nazari1

Mechanical Engineering, Neyriz Ghadir Steel Complex (NGHSCO), nazarii.m.reza@gmail.com

Abstract

Afterburners are one of the most critical components of turbine engines, capable of enhancing thrust without significantly increasing weight. Afterburners are used for short periods of time during maneuvering, take-off or momentary speed increase. The performance of afterburners can be categorized into two modes: afterburner lit and afterburner unlit. One of the key requirements for afterburner design is flame stability. The length of the recirculation zone behind the bluff-body flame can be considered an indicator of flame stability. In this study, the impact of inlet conditions on afterburner performance under combustion conditions has been investigated. The inlet temperature is considered as the variable parameter, while the recirculation zone and flow pattern serve as the case under examination. The results indicated that an increase in the inlet temperature to the afterburner not only extended the length of the recirculation zone but also increased the flame spread angle, ultimately leading to enhanced combustion efficiency.

Keywords: Afterburner, bluff-body, numerical simulation, recirculation zone.

DME/DME as an alternate of GNSS and Analyze it on Airbus 330

Amirhossein Jangholi1 - Mohsen Kazemi2 -Mohammad Rashtian3

1 Civil aviation technology college, IRAN, ahjangholi@gmail.com

2 Civil aviation technology college, IRAN, mo.kazemi@airport.ir

3Civil aviation organization college, IRAN, rashtian@ms.catc.ac.ir

ABSTRACT

The global increase in air travel has led to airspace congestion and operational challenges. To address these issues, organizations like the ICAO have introduced PBN . Unlike traditional navigation, which relies heavily on ground-based radio stations, PBN leverages GNSS , though ground stations are still used as backups. PBN enhances flight efficiency and airspace capacity by employing RNAV and RNP concepts, resulting in reduced fuel consumption, lower noise levels in residential areas, and shorter travel times. Although GNSS is considered a reliable navigation source, it is prone to certain errors, such as satellite clock and orbit errors, as well as atmospheric, ionospheric, and

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receiver errors. Despite these limitations, airlines and pilots increasingly rely on GNSS-based navigation. In addition to GNSS, PBN can be supported by sensors and ground-based systems, such as VOR /DME and DME/DME. However, for PBN to deliver maximum benefits, global implementation is essential. In regions where GNSS service is limited or unreliable, systems like DME/DME play a crucial role in ensuring the continuity and effectiveness of navigation.

Keywords: PBN, GNSS, DME, FMS

Analysis of events relevant to parent bodies and the formation of Shahdad chondrites

Maryam Boeini*1

Kharazmi University

ABSTRACT

4 pieces of meteorites (KM97002, KM97003, KM97008, KM970010)which have been classified in previous studies and according to them, these meteorites are ordinary meteorites, chondrites with petrological type H4 . In this study, it is attempted that the events which are occurred in the asteroid parent body (Eros) of these fragments, which form evidence in the minerals (opaque minerals, kamacite, taenite) sulfide phase, matrix, CAIs, rings and rims, exist to be expressed in isolation. In this regard, first, after field studies and researches, as well as using microscopic polarization and reflection studies, we looked at the formation of metal elements and phases. In this way, it can be achieved to simulate the thermal evolution of the early asteroid Eros and can reconstruct the thermal history. Using this information is beneficial because of possibility identification more accurate analysis of the processes affecting the formation of the asteroid, and it will also be much easier to answer the question that whether it was formed before the asteroid formation, and the chondrites have been hit by interplanetary suspended projectiles.

Keywords: Asteroid parent body, Opaque mineral, Matrix, CAIs, Asteroid thermal evolution.

Determining the tectonic setting of Hyderabad (Nehbandan) peridotites using Cr-spinel chemistry

Mansour Adelpour

1, * Department of Geology and Exploration, Institute of Strategic Elements, Iranian Research Organization for Science and Technology (IROST), Tehran, Iran- man.adelpour@yahoo.com

Abstract

The Hyderabad ophiolitic mélange is located in the Nehbandan ophiolite complex, located in the Sistan Suture Zone (SSZ), at the boundary between the Lut and Afghan continental blocks. The Hyderabad ophiolitic mélange is composed of mantle peridotite, gabbro, gabbronorite, pillow basalt, listwaenite, and deep-sea sediments in the mid-ocean ridge setting. Microprobe studies on the Cr-spinels in the mantle peridotites show very high Mg# and Cr# and low TiO2 values. The Fe+3 content in the Cr-spinels in the studied mantle peridotites is very low, indicating crystallization under conditions of low oxygen fugacity, which are characteristic of abyssal peridotites.

Keywords: Nehbandan, peridotite, abyssal, Cr- spinel.

Verification of Extrasensory Experiences Based on the Islamic Framework

Mohammad Haeri Shirazi,* Seyed Mohammad Kazem Tabatabaei

1 Ph.D. in Sciences and Teachings of Nahj al-Balaghah, University of Quran and Hadith, Qom.

2 Associate Professor at the University of Quran and Hadith, Qom.

ABSTRACT

This study aims to present a structured and reliable framework for the verification of extrasensory experiences within the context of Islamic epistemology. For this purpose, three main criteria have been examined as essential bases for validating these experiences: reason, alignment with religious texts (the Quran and Hadith), and adherence to the practice of rational sages (sīra ʿuqalāʾ). The research methodology is analytical-descriptive, utilizing Islamic sources and rational evaluations to analyze and integrate data. Findings reveal that, despite the potential spiritual value of extrasensory experiences, they require precise verification and validation to ensure their alignment with Islamic principles and criteria. Reason, as a preliminary filter, ensures that such experiences are compatible with logical principles and moral standards, while compatibility with religious texts grants them spiritual credibility. Additionally, the application of rational practices, such as the principle of khabar al-wāḥid (solitary report), reinforces the acceptance of these experiences within an Islamic framework. This study offers a model that, while faithful to Islamic foundations, can serve as an analytical tool for evaluating extrasensory experiences in interdisciplinary fields such as neuroscience and psychology. Furthermore, this framework facilitates dialogue between scientific and spiritual perspectives on mystical and metaphysical experiences, providing a stable and reliable paradigm for future research in this domain.

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Keywords: Experience evaluation, extrasensory experience, Quran and Hadith, epistemic validity, religious knowledge.

Theological views of Sheikh Ashraq and Ibn Sina in the light of contemporary governance.

Mohammad Esmaeil Abdollahi Abolfazl Tajik ,Mohammad Melabi

1-Faculty of Governance, University of Tehran, Tehran, Iran. E-mail: m.e.abdollahi@ut.ac.ir

2-Assistant Professor of the Religions and Mysticism Department , AhlulBayt International University , Iran . Tehran. a.tajik@abu.ac.ir

3-Graduated with a PhD in Theological Religions, University of Religions and Religions- m.m55702797@gmail.com

Abstract

The discussion of happiness and misery has been of special importance among thinkers and in public culture since long ago. Man's concern for eternal life and the world after death has caused him to always try to provide the conditions to achieve happiness and avoid misery. Using the descriptive-analytical method and the library method, this research examines the theological views of two prominent thinkers, Sheikh Ashraq and Ibn Sina, about the meaning of happiness and misery and the ways to achieve it . Sheikh Eshraq believes that happiness and misery are the result of doing or abandoning God's commands and commands, and its final determination takes place in the world after death. From his point of view, the blessed are those who are among the followers of Prophet Muhammad (PBUH). On the other hand, Ibn Sina defined happiness as prioritizing sensual perfections over physical ones, and he believes that this requires meeting the needs of the members of the society. He considers Shaqi people to be those who, despite knowing the truth, deliberately deny it . By analyzing these views, this research tries to provide a space to expand the understanding of happiness and misery in the framework of governance and management of society, so that these concepts are taken into account in macro social policies and decisions .

Keywords : happiness , misfortune , Sheikh Ashraq , Ibn Sina , governance , Islamic philosophy , social policy

The Role of Religion in Enhancing the Quality of Social Life

Seyyed Mehdi Tajzad Ghehi[1], Fatemeh Abbasian Esfarajani[2]

1 Faculty member and Assistant Professor, Farhangian University, Bahonar Campus, Isfahan, mehditajzad@gmail.com

2 PhD student in Quranic Sciences and Hadith, Islamic Azad University, Khorasgan Branch, Isfahan, f.abbasiyan67@gmail.com

ABSTRACT

Considering that religion is a fundamental aspect rooted in human nature and has consistently played a decisive role in enhancing individuals' quality of life, this article, titled "The Role of Religion in Enhancing the Quality of Social Life," aims to analyze the positive and negative effects of religion on social relationships and the improvement of living conditions across various societies. The primary question of this paper is whether, despite the challenges and criticisms directed toward religion, it can still be considered an effective factor in increasing the quality of social life. To answer this question, the study draws on a range of scientific and religious sources to provide a comprehensive and balanced understanding of religion's role in social life and explores ways to utilize its teachings to improve social life quality. Conducted through a descriptive-analytical approach, the study's findings reveal that religion, by providing ethical and spiritual frameworks, plays a significant role in enhancing social relationships and fostering cohesion. However, factors such as religious biases and secularist claims can weaken this role and lead to social issues. Finally, recommendations are presented to improve the role of religion in enhancing the quality of social life.)

Keywords: Religion, Quality Enhancement, Social

Exploring How the "Fear of Missing Out" (FOMO) Stimulates the Nervous System to Promote Unique Travel Experiences: A Systematic Review

Faranak Saberi1, Farzin Ghanooni2

1. Master of Tourism strategy cultural heritage and made in Italy, torvergata university, Rome, Italy

1. Master of Clinical Psychology, Department of Psychology, Faculty of Medicine, Islamic Azad University, Tehran, Iran

2. Master of Tourism strategy cultural heritage and made in Italy, torvergata university, Rome, Italy

Abstract

This study explores the concept of "Fear of Missing Out" (FOMO) and its neural pathways, particularly in the context of travel experiences, highlighting the relationship between FOMO and the nervous system. FOMO, defined as the anxiety triggered by the belief that others may be experiencing rewarding activities that one is missing out on, has profound psychological and social implications, particularly in the digital era. The paper delves into the psychological mechanisms behind FOMO, its impact on human behavior, and how it influences travel decisions.

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It discusses how FOMO stimulates the nervous system, including the release of dopamine and activation of key brain regions like the default mode network, which govern emotional responses and decision-making. Moreover, this research examines how FOMO is leveraged in tourism marketing to foster urgency and social validation, ultimately influencing travelers' decisions. By investigating the implications of FOMO, the paper highlights both the positive and negative effects on tourism, such as encouraging exploration and new experiences, but also contributing to stress, decision fatigue, and emotional dissatisfaction. Finally, it suggests that responsible use of FOMO in marketing strategies can enhance traveler engagement while promoting sustainable tourism practices.

Keywords: Fear of Missing Out, Tourism Marketing, Travel Motivation, Neural Influence

Optimizing Fat Loss: A Biochemical and Physiological Comparison of Aerobic, Resistance, and Concurrent Training Methods

Mohammad Bagher Afshar Naseri1,*

1.Islamic Azad University Tehran North Branch, Exercise Physiology Department, Tehran, Iran

ABSTRACT

Due to obesity becoming the number one disease around the world, diet, as a result, is a part of our lives. Exercise has been shown to be impactful in the way of enhancing the effectiveness of diet and lowering fat mass. This review will represent a short comparison between aerobic, resistance, and concurrent exercise methods to display the physiological and biochemical effects of each. Comparing them can enhance public awareness and result in more conscious choices between them, whether they are athletic individuals or individuals who want to have an active lifestyle.

Literature has yet to discover the most beneficial exercise for each individual, and engaging in more discussion would allow scientists to prevent obesity in the long run. This review showed that using concurrent might be the most effective exercise in the short run. However, more practical implications are needed in the long run to gather a general conclusion, making it more straightforward for the public and academia to discuss underlying effects, impactfulness, and easier access openly.

Considering the diet, calorie intake, and required energy intake would always stay prior to choosing different exercises for lowering fat mass.

Keywords: Aerobic Exercise, Resistance Training, Combined Training, Obesity, Public Health

The Differential Effects of Heat Therapy, Ice Bath, and Massage on Central and Peripheral Fatigue and the Neuromuscular System: A Review

Mohammad Bagher Afshar Naseri1, *

Islamic Azad University Tehran North Branch, Exercise Physiology Department, Tehran, Iran

ABSTRACT

This review focuses on optimizing athlete recovery during training and competition. While existing literature thoroughly explores recovery scenarios, additional insights are needed for practical application. Performance induces stress on the body, which can be harmful or beneficial based on individual responses. Key recovery methods include proper nutrition, rest, heat therapy, ice baths, and massage, each tailored to physiological needs. Factors like sex, age, and specific demands should guide recovery strategies, emphasizing individual requirements. While techniques like heat therapy and ice baths can enhance circulation and recovery, the placebo effect should be acknowledged. It's essential to consult professionals for personalized recommendations. Peripheral fatigue (PF) is manageable, but central nervous system (CNS) exhaustion complicates recovery; consulting a practitioner is advisable to avoid performance degradation issues.

Keywords: Heat therapy, Ice bath, Massage, Central fatigue, Peripheral fatigue, Neuromuscular system, Athletic performance, Recovery

The investigation of the effects of different levels of pomegranate kernel and kernel oil on fatty acid composition and qualitative characteristics of eggs

Alireza Gharagozloo,Farshid Kheiri,Mostafa Faghani

Faculty of Agriculture, Shahrekord Islamic Azad University, Ph.D. in Animal Sciences, Shahrekord, Iran

Faculty of Agriculture, Shahrekord Islamic Azad University, Animal Sciences Department, Shahrekord, Iran

Faculty of Agriculture, Saveh Islamic Azad University, Animal Sciences Department, Saveh, Iran

Corresponding author:Alireza Gharagozloo - Email address: Alireza_gh514@yahoo.com

Abstract:

In order to investigate the effect of using different levels of pomegranate kernel and kernel oil on qualitative characteristics and fatty acid composition of eggs, laying hens, this experiment was conducted with 144 laying hens of commercial mixed white Leghorn breed (Hi-line

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w80) in 9 treatments, four replications and four hens were designed and implemented in each repetition. The above experiment was conducted in the form of a completely randomized design with four levels of pomegranate kernel and four levels of pomegranate kernel oil for ten weeks from the age of 25 to 35 weeks.. The values of white index, yolk color, Haugh unit, specific weight were significantly affected by different levels of pomegranate kernel and kernel oil ($p<0.005$). The amount and proportion of fatty acids forming the egg profile were significantly influenced by pomegranate kernel and kernel oil ($p<0.005$), which showed a significant increase in the percentage of punicic acid (C18:3 n-18) with the increase of pomegranate kernel and kernel oil ($p<0.005$). The amount of other long-chain omega-6 fatty acids (with more than twelve carbon atoms) varied between 0.83-1.66 %. Omega-3 fatty acids in the eggs of the present experiment included as follows: alpha-linolenic acid (LNA), eicosapentaenoic acid (EPA), docosapentaionic acid (DPA) and docosahexaenoic acid (DHA), which among these, the docosahexaenoic acid (DHA) was recognized as the most abundant omega-3 fatty acid and the amount of docosahexaenoic acid (DHA) in eggs varied between 0.7-0.31%. Punicic acid, the amount of this valuable fatty acid increased with increasing the amount of consumed pomegranate kernel oil, so that the amount of this fatty acid was zero in the control treatment and in the 0.4 pomegranate kernel oil treatment (0.555) was placed on the highest rank and compared to omega-3 fatty acids to Omega-6 in the treatments was equal to 17. 29 – 9.98 and alpha-linolenic acid (C18:3n3) was less than 0.42, and the amount of eicosapentaenoic acid (EPA) in the produced eggs was very little and less than 0.23%. The present experiment showed that it is possible to use pomegranate kernel and kernel oil as a source of conjugated linolenic acid and improve some of qualitative characteristics of eggs.

Keywords: Laying hen, Pomegranate kernel and kernel oil; Fatty acid profile; Egg yolk; Linoleic acid

Investigating the effect of tea leaf extract to prevent increasing damages of snails (*Cornu aspersum*) in lettuce farms in Gilan province

Dina Pourali[1,*] - Mobina Vahedi Vaez [2] - Mohana Arshadi [3] - Shaghayegh Rostami [4] – Niloofar Haghi [5]

[1] Researcher and High School Student of Farzanegan Rasht Upper Secondary School, Gilan, Iran (NODET) dinapurali11@gmail.com

[2] Researcher and High School Student of Farzanegan Rasht Upper Secondary School, Gilan, Iran (NODET) vahedivaezmobina@gmail.com

[3] Researcher and High School Student of Farzanegan Rasht Upper Secondary School, Gilan, Iran (NODET) mohana.arsh2007@gmail.com

[4] Researcher and High School Student of Farzanegan Rasht Upper Secondary School, Gilan, Iran (NODET) rshaghayegh1234@gmail.com

[5] PhD in Biology, Department of Biology, Faculty of Basic Sciences, University of Gilan, Iran. haghi.niloofar.marine@gmail.com

ABSTRACT

The garden snail (Cornu aspersum) is one of the most important dryland pests in farms and gardens, causing significant damage to agricultural crops annually. Although it has been somewhat controlled through various methods such as Metaldehyde and Thiodicarb pesticides, these substances can have long-term harmful effects on humans and the environment, as well as lead to increased pest resistance to chemical pesticides. The aim of this research was to achieve biological control of this pest using tea extract. For this purpose, tea leaves were collected and dried, and the tea extract was obtained by using 99% ethanol as a solvent at room temperature. To study the behavior of snails, 30 lettuce seedlings were planted in the designated area in completely randomized blocks, with two blocks and three replications, each replication consisting of 5 lettuce seedlings. After one month, 4 snails were introduced to each replication. The first block of plants was treated with water as a control. The second treatment involved 6% Metaldehyde, and the third treatment involved spraying the tea leaf extract uniformly on the designated replications. Tracking and counting of live snails were conducted over 8 days. The results of this experiment showed that the tea extract, similar to Metaldehyde, was able to partially prevent the damage caused by snails to lettuce plants, and statistically, there was no significant difference between the average efficacy of Metaldehyde and tea extract. Therefore, one of the compounds in tea extract, such as tea saponin, may be a suitable and biological alternative to Metaldehyde pesticide against these pests.

Keywords: Biological control, Lettuce, Methaldehyde, Saponin, Snail, Tea leaf extract.

Identification of new variants of the BMP15 gene causing Premature Ovarian Failure in Lorestan families by whole-exome sequencing and In silico analysis

Hamed Esmaeil Lashgarian 1, Hamidreza Khodadadi 2* , Masumeh Jalalvand 3, Maryam Zand 4 , Leila Abkhooie 3 , Amirmasoud Jalalvand 5, Arastoo Kaki 6,7

1-Associate Professor, Department of Medical Biotechnology, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran

2-Assistant Professor, Hepatitis Research Center, Department of Medical Biotechnology, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran

3-Assistant Professor, Department of Medical Biotechnology, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran

4-Department of Biotechnology and Molecular Medicine, Faculty of Medicine, Arak University of Medical Sciences, Arak, Iran.

5-Department of Medical Biotechnology, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran

6-Department of Molecular Medicine and Genetics, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran

7-Research Center for Molecular Medicine, Hamadan University of Medical Sciences, Hamadan, Iran

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ABSTRACT

Premature ovarian insufficiency (POI) is characterized by the halt of ovarian function prior to the age of 40, presenting with diminished sex hormone levels, elevated gonadotropin levels, and resulting in infertility and recurrent miscarriages in females. Genetic elements contribute significantly to the reproductive challenges associated with POI, impacting both infertility and miscarriage occurrences. A key player in folliculogenesis, BMP15, a TGFβ superfamily member, governs this pathway and any alterations in its gene sequence can disrupt normal follicle development. BMP15, expressed in oocytes, is pivotal for reproductive processes in certain species. When POI manifests, disruptions in BMP15 gene function result in infertility, escalating the likelihood of miscarriages due to compromised oocyte quality and diminished ovarian reserves. Genomic DNA was extracted from the peripheral blood sample after a physical examination, ultrasound. Whole Genome Sequencing were performed. In silico prediction tools utilized were Phyer-2 web server, Polymorphism Phenotyping version 2 (PolyPhen-2), GalaxyWEB and ModRefiner, UCSF Chimera software, molecular docking using ClusPro 2.0.Exome sequencing revealed a missense mutation c.226C>T:p.Arg76Cys in exon 1 of the BMP15 gene in Lorestan families. In silico prediction tools revealed that variation Arg 76 Cys changed the binding affinity and pattern of the BMP-15 and BMPR1B complex. Changes in the binding affinity and pattern of the complex protein may cause disruptions in BMP15 gene function and can lead to infertility.The identification of BMP15 gene variants holds promise for healthcare practitioners to devise more targeted interventions, potentially ameliorating the impact of infertility and miscarriage among affected individuals. Hence, this investigation delves into exploring BMP15 gene variations within a cohort of infertile women from Lorestan province grappling with premature ovarian insufficiency.

Keywords: Premature ovarian insufficiency (POI), BMP15, infertility, whole-exome sequencing

Discovery of a new c.1834dup variant in a boy individual presenting with the POMGNT1-associated muscular dystrophy-dystroglycanopathy

Hamed Esmaeil Lashgarian 1, Hamidreza Khodadadi 2*, Masumeh Jalalvand 3, Maryam Zand 4, Amirmasoud Jalalvand5, Leila Abkhooie 3

1.Associate Professor, Department of Medical Biotechnology, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran

2.Assistant Professor, Hepatitis Research Center, Department of Medical Biotechnology, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran

3.Assistant Professor, Department of Medical Biotechnology, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran

4.Department of Biotechnology and Molecular Medicine, Faculty of Medicine, Arak University of Medical Sciences, Arak, Iran.

5.Department of Medical Biotechnology, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran

ABSTRACT

Muscular dystrophy-dystroglycanopathy refers to a group of autosomal recessive neurodegenerative disorders resulting from homozygous or compound heterozygous mutations in the gene encoding POMGNT1 O-mannose β-1,2-N-acetylglucosaminyltransferase. The clinical presentation of this form of muscular dystrophy typically includes early-onset muscle weakness, gait ataxia, microcephaly, and growth delay. A case study was conducted on an 8-year-old Iranian male displaying symptoms such as microcephaly, seizures, hydrocephalus, cerebellar abnormalities, glaucoma, growth delay, and lissencephaly. The parents of the affected child were found to be heterozygous for the POMGNT1 gene. Within the scope of this investigation, a novel duplication (dup1834c) was identified in exon 21 of the POMGNT1 gene. The presence of dup1834c in the POMGNT1 gene was verified through Sanger sequencing in the affected individual and other family members affected by the disease.

Keywords: Muscular dystrophy-dystroglycanopathy, POMGNT1, Next generation sequencing (NGS)

Exploring the efficacy of E7449 Anti-cancer Agent binding to PARP1: a molecular dynamics simulation approach

Hamed Esmaeil Lashgarian1, Vahideh Assadollahi2*, Masumeh Jalalvand3*, Hamidreza Khodadadi4, Leila Abkhooie3, Amirmasoud Jalalvand5, Mansoreh Abdolhosseini6

1.Associate Professor, Department of Medical Biotechnology, Faculty of Medicine, Lorestan University

2.Assistant Professor, Department of Tissue Engineering & Applied Cell Sciences, School of Advanced Technologies, Shahrekord University of Medical Sciences, Shahrekord, Iran.

3.Assistant Professor, Department of Medical Biotechnology, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.

4.Assistant Professor, Hepatitis Research Center, Department of Medical Biotechnology, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran

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5.Department of Medical Biotechnology, school of advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran.

6.Department of Molecular Medicine, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran.

Corresponding author: Vahideh Assadollahi, Email: anna.assadollahi@gmail.com

Co-corresponding author: Masumeh Jalalvand, Email: masumehjalalvand@gmail.com

ABSTRACT

Poly polymerase 1, a protein of the PARP family, is involved in the cellular processes of DNA damage repair and apoptosis. Disabilities within the work of this protein can lead to distinctive illnesses, including cancer. E7449 is a novel PARP inhibitor with great potential as a cancer therapeutic. The point of this study is to investigate the interaction between E7449 and the PARP1 protein. In this study, a model of PARP1 protein was created with Modeller 9.16 software. First, we chose a model of PARP1 with a high degree of similarity to the Protein Data Bank, and introduction of this model into the simulation stage was based on energy. Simulation of its molecular dynamics was performed via GROMACS, after which its connection areas with E7449 were ascertained by AutoDock 4.2 software. The stability of the root mean square deviation diagram and energy indicated that the three-dimensional structural model was stable and closely approximated natural PARP1. Docking studies also showed that this protein has an attachment site for E7449. Given the biological importance of PARP1, the findings of this study suggest that its simulation in an in silico environment could be used to design inhibitory ligands for eventual therapeutic purposes.

Keywords: Molecular dynamics simulation, PARP1, E7449, DNA repair

Predicting Band Gap of Carbon and Nitrogen-Based Photocatalysts Using Machine Learning

Pouya Pishkar1,*

School of Metallurgy and Materials Engineering, College of Engineering, University of Tehran, Tehran, Iran

ABSTRACT

The increasing need for sustainable energy solutions has driven the development of photocatalytic materials with tailored band gap properties. In this study, a Random Forest Regressor model was developed to predict the band gap of materials incorporating carbon and nitrogen. The model utilized a dataset comprising 3626 materials with features such as density, energy above the hull, magnetic ordering, and structural parameters, with data sourced from Materials Project. The predictive performance of the model was evaluated using metrics including MAE = 0.450 eV, RMSE = 0.677 eV, and a R^2 = 0.813, indicating strong predictive capability. Feature importance analysis revealed that magnetic ordering and density were the most influential factors, contributing 22% and 16.9%, respectively, to band gap predictions. A correlation heatmap further highlighted the relationships among material properties, with density showing a strong negative correlation (-0.98) with band gap values. The findings demonstrate the effectiveness of machine learning in accurately predicting band gaps, overcoming the limitations of traditional computational methods, and enabling the rapid identification of promising photocatalysts. This approach significantly accelerates the discovery of materials for applications in water splitting, CO_2 reduction, and environmental remediation, supporting the transition to sustainable energy solutions.

Keywords: Photocatalysts, Band gap prediction, Machine learning, Carbon and nitrogen-based materials, Random forest regressor

Efficacy of licorice extract in Acne vulgaris and Rosacea treatment

Farshad Akbarnejad

Scientific Department of Dr. Akhavi Laboratory Health Pharmaceutical Company, Tehran, Iran

E-mail:farshad.borom@gmail.com - https://orcid.org/0000-0001-9774-0985

Abstract

Licorice root has been used as a medicinal plant in Europe since prehistoric times, and the therapeutic use of the dried roots of different licorice varieties dates back to ancient Greece. According to in vitro and in vivo and clinical researches, several valuable medicinal properties such as anticancer, antiviral, strengthening the body's immune system, detoxification, sedative, treatment of digestive diseases, liver diseases treatment, treatment of heart diseases, atherosclerosis problems, and several other curative results have been confirmed. The purpose of the literature review is to investigate the effectiveness and safety of licorice derivatives in acne and rosacea, which may be useful for clinical trials on the dermatological effects of licorice and the development of complementary medicine in the future.

Keywords: Licorice, Acne, Rosacea, Anti-androgenic activities

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A Review on the Applications and Bioactive Properties of Fucoxanthin Extracted from Brown Algae

Marzieh Monirifar1,* - Behjat Ashouri2

1 Department of Fisheries, Sari Agricultural Sciences and Natural Resources University, Mazandaran Province, Iran. Email: Marziemonirifar81@gmail.com

2 Department of Fisheries, Sari Agricultural Sciences and Natural Resources University, Mazandaran Province, Iran. Email: Mehrnaz.ashouri.1382@gmail.com

ABSTRACT

Fucoxanthin (FX), as a natural carotenoid, is found in the chloroplasts of brown algae. Due to its unique characteristics and properties, it has attracted the attention of many researchers and specialists in the food and pharmaceutical industries. They have focused on studying its functional traits, such as antioxidant, anti-inflammatory, anti-cancer, anti-diabetic, anti-obesity, and anti-aging properties, to explore its extraction and processing.

This article first examines modern methods used for fucoxanthin extraction, including microwave-assisted extraction (MAE), ultrasound-assisted extraction (UAE), conventional heat-assisted extraction (HAE), Soxhlet-assisted extraction (SAE), and supercritical carbon dioxide extraction (SC-CO_2). Studies have shown that the resulting metabolites enhance fucoxanthin's biological properties and play a role in its therapeutic and protective activities. Research on the anti-obesity effects of fucoxanthin indicates that this compound reduces insulin resistance (MetS), which is a key factor in obesity and its related complications. Fucoxanthin and its metabolites can inhibit the growth of cancer cells and, through their antioxidant activity, help reduce the negative effects of diabetes in the body. Recent studies on this compound have also observed its beneficial impact on the metabolic activities of the gut microbiome. A review of research findings indicates that fucoxanthin is a highly bioactive compound with great potential for the production of marine pharmaceutical products and dietary supplements, offering significant economic value.

Keywords: Fucoxanthin, Bioactive, Pigment extraction, Brown Algae, Anti-obesity, Anti-cancer, Antioxidant properties, Insulin resistance, Dietary.

Analysis and Optimization of the SAGD Method in One of Iran's Heavy Oil Reservoirs

Amin Sadeqi[1], Hamid Deris[2]

Supervisor of Drilling Operations, National Iranian Drilling Company (petroleum.amin.sadeghi@gmail.com)

[2]Advisor to the Deputy Minister of Oil on Hydrocarbon Resource Oversight

Abstract

The depletion of conventional crude oil reserves has driven the development of various methods to enhance oil recovery, particularly for heavy oil. It has been established that only a small percentage of heavy oil can be recovered using current EOR techniques, such as water injection, chemical methods, thermal recovery, and so on. To increase the recovery factor in heavy oil reservoirs, the viscosity of heavy oil must be reduced by heating. One of the most effective and innovative thermal recovery methods is the SAGD (Steam-Assisted Gravity Drainage) process. SAGD is a mechanism designed for recovering heavy oil reservoirs. This mechanism involves two horizontal wells: the upper well is used for injecting hot steam into the reservoir, while the lower well is employed for producing heated oil. When heavy oil is heated by injected steam, the warmed oil influenced by gravitational forces, drains into the production well, and is pumped to the surface. Numerous studies conducted by scientific teams have demonstrated the success of this mechanism. In this study, the effects of reservoir and operational variables – such as permeability, vertical-to-horizontal permeability ratio, rock heat capacity, thermal conductivity, heat losses, steam quality and injection rate, vertical well spacing, well pair length, and preheating period – on SAGD performance were examined. The results indicated that extending the preheating period increases oil production. Conversely, increasing the steam injection rate reduces oil production. Steam quality also plays a critical role in the recovery factor, and higher rock heat capacity leads to lower oil production.

Keywords: Heavy Oil, Enhanced Oil Recovery, Thermal Methods, EOR, SAGD

The role of knowledge management and the necessity of knowledge management culture in the oil and gas industry

Amin sadeqi ,* Abdol hossein bayat , Hamid deris

1-(Supervisor of Drilling Operations, National Drilling Company of Iran)(petroleum.amin.sadeghi@gmail.com)

2- (Former Chairman of the Board of Directors of Oil Pension Funds)(bayat.abolhosein@ut.ac.ir)

3-(Advisor to the Deputy Minister of Petroleum in the supervision of hydrocarbon resources)(h.deris1964@gmail.com)

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Research Article

ABSTRAC

Today, knowledge as an intangible capital and asset has found an important place in organizations. The best and most effective application of organizational knowledge in an organized and managed manner and its integration into the organizational culture creates significant economic, social and cultural progress in organizations. But on the other hand, unsuccessful knowledge management can impose a lot of costs on the organization. So knowing the success factors of knowledge management and using them can be a guide for its better management.

The role of knowledge in the competitiveness of economic enterprises has become much more prominent during the last decade, in fact, today, the added value gained by economic enterprises is often obtained not by means of equipment and facilities but by the knowledge accumulated in that organization. As a very effective parameter, knowledge management with the art of creating added value from this intangible capital is of special value and importance. The oil and gas and petrochemical industry is a specialized and experience-oriented industry that considers human power as the most important organizational knowledge. Minimizing the cost and time in the optimal implementation of specialized activities, while achieving the desired quality, is one of the necessities of attention of the managers of these industries. Due to the rapid advances in technology, geographical dispersion, diversity of equipment, and the large number of employees in the oil and gas and petrochemical industry, it is a specialized and experience-oriented industry that considers human power as the most important knowledge asset of the organization. Minimizing the cost and time in the optimal implementation of specialized activities while achieving the desired quality is one of the needs of the managers of these industries. Due to the rapid advances in technology, geographical dispersion, variety of equipment and large number of employees in the oil and gas and petrochemical industry, knowledge management can play a very important role in realizing the goals of upstream and downstream industries. Currently, many leading oil companies in the world such as Shell, British Petroleum, Chevron, etc. have implemented knowledge management processes and solutions and institutionalized the knowledge management team in their organizational structure. In our country, achieving the first position in the region, in accordance with the goals of the 1404 Development Vision and Horizon document, as well as the privileged position of oil, gas and petrochemical industry projects, shows the double importance of establishing a knowledge management system in these industries.

Keywords: knowledge delay, knowledge management cycle, cultural necessity of knowledge management, oil company

The Effect of Ondansetron augmentation therapy on schizophrenia symptoms: A double-blinded randomized clinical trial

Ahmadvand Afshin1*, Sepehrmansh Zahra1, Motshaker Alireza2, Assarian Fatemeh1, Rahimi Habibollah3

1.Department of psychiatric, Clinical research development unit-Matini/Kargarnejad hospitals, Kashan University of Medical Sciences, Kashan, I.R. Iran

2.Department of psychiatric, Kashan University of Medical Sciences, Kashan, I.R. Iran

3.Department of Epidemiology and Biostatistics , Clinical research development unit-Matini/Kargarnejad hospitals, Kashan University of Medical Sciences, Kashan, I.R. Iran

ABSTRACT

Negative symptoms treatment of schizophrenia has remained unsatisfactory, whilst positive symptoms managed more effectively. In this regard the clinicians trying to find more effective combination drugs as monotherapy or augmentation therapy.In this study aimed to assess the efficacy of ondansetron augmentation therapy on negative symptoms of schizophrenia patients.This is a parallel-randomized clinical trial conducted on 50 schizophrenia patients, in Kashan city, in 2016-2017. The participants allocated to ondansetron augmentation and placebo groups. The negative symptoms measured with Positive and Negative Syndrome Scale (PANSS) in 0th, 4th, 8th and 12th weeks. The effect of ondansetron assessed using repeated measure analysis. Of 78% of patients were males. The mean age of patients was 35.7 ± 7.9 and 38.2 ± 9.1 for intervention and control groups. There was not between group significant differences respect to age, sex, duration and onset age of disease and PANSS baseline score. The analysis results revealed significant decline of negative symptoms in both study groups (declining negative symptom scores 21.7 to 9.2 in intervention group, 22.8 to 12.0 for placebo group) without significant difference between them (F=2.19, P=0.14). The augmentation therapy with ondansetron on schizophrenia patients had not enough efficacy, compare to placebo. More studies with sophisticated approaches such as factorial design with using different drugs on similar patients is recommended.

Keywords: Negative symptoms, Ondansetron, PANSS, Schizophrenia

Prediction of extramarital relationships based on sexual satisfaction and primary incompatible schemas in married women of Tehran.

Parisa Samadi

Master of Psychology, Azad University, Roudhen Branch, parisa.samadi9@gmail.com

Abstract

The present study was conducted with the aim of predicting extramarital relationships based on sexual satisfaction and primary incompatible schemas. This research was of applied type and descriptive method with correlation method. The statistical population of this research was

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the married women of Tehran in 1402, which numbered 200 people based on the rule of 20 people per indicators (20x13) using the method Multistage cluster random sampling were selected. The data collection tools were: Yensari and Kokdemir Marital Infidelity Questionnaire (2018), Larson Sexual Satisfaction Questionnaire (2012) and Questionnaire Young's primary maladaptive schemas (1387). Using SPSS software version 27, the data was analyzed in two parts, descriptive and inferential statistics. Multiple linear regression was used to test the hypotheses and it was calculated and reported as squared semi-separate correlation. The results of the research showed that there is a significant negative relationship between extramarital relationships with sexual satisfaction and primary incompatible schemas. Among the predictive variables, emotional inhibition dimension (beta = -0.245) and sexual satisfaction (beta = 0.172) significantly predict marital relationships. The highest beta is related to the emotional inhibition variable. The share of emotional inhibition is 20.3% and sexual satisfaction is 2.2%. That is, when these two are combined, the contribution of emotional inhibition is greater than sexual satisfaction. Each of these variables, when tested separately, are still significant predictors of extramarital relationships after emotional inhibition in primary maladaptive schemas and sexual satisfaction alone. Regarding the dimensions of sexual satisfaction, it was also found that the three dimensions of desire to establish a relationship, sexual attitude, and quality of sexual life significantly predict extramarital relationships.

Keywords: extramarital relationships, betrayal, incompatible schemas and sexual satisfaction

The consequences of dollarization of the economy on increased inflation and social dissatisfaction, Case study: Argentina

Hossein Zamani Mighan

PhD student, Economics, Iranian Azad University, Firoozkouh Branch

Hzamani69@gmail.com

ABSTRACT

One of the economic policies in different countries is the dollarization of the economy. This policy is mainly based on neoliberal principles that are implemented with the aim of confronting economic challenges. However, this policy has not had the same and positive feedback in all countries. Dollarization in Argentina has been one of the most important and challenging economic policies that has had significant consequences. In response to the decades-long financial crises that included high inflation, foreign debts, and devaluation of the national currency, the Argentine government decided to implement policies to strengthen the use of the dollar in the economy. Now, the main question in this study is what economic and social consequences did dollarization have in Argentina? The results show that dollarization in Argentina led to the loss of control over independent monetary policy and increased dependence on the US economy, which made the country more vulnerable to external shocks and economic crises and reduced the economy's resilience to global changes. This heavy dependence on foreign economies has increased the fragility of the economy and reduced export competitiveness. It has also exacerbated economic inequality and class divides, especially for low-income groups, who have faced rising living costs and reduced public trust in the government. Ultimately, dollarization has placed greater pressure on the weaker sections of society and increased social discontent.

Keywords: Economy, Dollar, Dollarization, Inflation, Foreign Debt

History, maintenance, service and repair, troubleshooting and increasing the life of Siemens RTD cards

Gholam Abbas Abdollahi Safiabadi - Email: Abdellahi.meghdad@gmail.com

Abstract

One of the most important concerns of various industries is the management of energy and raw material consumption. The increase in costs associated with these resources has caused companies to seek a more efficient solution to reduce these costs. Siemens PLC plays an important role in managing energy and raw material consumption by providing precise control and optimization of processes. These systems prevent energy waste and contribute to optimal energy consumption by regulating and monitoring equipment performance. For example, Siemens PLC is able to minimize energy consumption by optimally adjusting the timing of equipment on and off. This feature not only helps reduce operating costs, but also contributes to environmental protection and sustainable use of natural resources. In addition to controlling energy consumption, Siemens PLC can also play a role in optimizing the consumption of raw materials. With their high precision in controlling production processes, these systems can optimize the amount of raw materials consumed and prevent waste. In this way, various industries such as petrochemicals, automotive and food production can increase their productivity and reduce costs related to energy and raw material consumption by using Siemens PLC. Using the data collected by Siemens PLC also allows managers to have a detailed analysis of energy and raw material consumption in production processes and make further optimizations in this area by making the necessary changes. As a result, reducing energy and raw material consumption helps to increase profitability and reduce negative environmental impacts. This approach also leads to improved economic performance of companies, social responsibility and conservation of natural resources. This article attempts to examine Siemens RTD cards in a specialized manner and to increase their efficiency in industries in a completely specialized manner.

Keywords: Siemens PLC, RTD card, RTD maintenance, RTD card failure, RTD failure prevention, RTD usage principles, RTD life

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Synergy between artificial intelligence and circular economy to promote environmental sustainability

Jamal Soleimani

Master's degree in Economics from Allameh Tabatabaei University,email: jamal.soleimani96@gmail.com

Abstract

This research examines the synergistic role of artificial intelligence (AI) and the circular economy in promoting environmental sustainability and improving AI resource efficiency. As a new way to manage resources, the circular economy focuses on recycling, reusing, and reducing waste. Artificial intelligence can help these processes work better by giving us advanced analytical algorithms and complex data modeling. Case studies from industries such as automotive, electronics, and smart agriculture show that the use of artificial intelligence can lead to waste reduction, increased recycling rates, and reduced operating costs. Among the most important results of this research is the improvement of resource efficiency and reduced environmental impacts in production and recycling processes. However, challenges such as high initial costs, lack of comprehensive data, and organizational resistance to technological change still exist. By identifying these challenges, this research offers solutions such as investing in digital infrastructure, training the workforce, and developing regulatory frameworks for data protection. The results of this research show that the integration of the circular economy can lead to environmental transformation and reduced dependence on natural resources, but AI To fully exploit these potentials, there is a need for multi-sectoral collaborations and wider adoption of these technologies.

Keywords: Artificial intelligence, circular economy, environmental sustainability, recycling optimization, data analytics

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Control and Monitoring of Greenhouse Facilities Using PLC

Amir Hossein Hooshmand

Bachelor's student in control engineering, Iran Technical and Vocational University (Bahonar Technical University, Shiraz)

Email: amirhos3ein.houshmand@gmail.com

ABSTRACT

All around the world, numerous efforts have been made to preserve agricultural and greenhouse products. The current system in the greenhouse struggles to maintain environmental conditions for plant growth, hence the necessity for industrial automation within greenhouses.

In this article, we delve into the construction of a PLC device that monitors and controls various factors such as internal and external greenhouse temperatures, soil and environmental moisture, soil pH levels, ambient light intensity, the level of water in the tank and its control, managing the entry and exit of staff, it has a humidifier by breaking water(fog maker), SMS alerts, and network-based labview for control and monitoring.

Keywords: labview, PLC, greenhouse, soil, ARM

Reviewing the content of the Geometry book in the field of basic mathematics of tenth grade based on the Willyam Roomy pattern

Khashayar Kaviyanpour , Somayeh Khalashi Ghezel Ahmad

1- Master of Science in Mathematics Education rasol.kavi@yahoo.com

2- Assistant Professor, Islamic Azad University, Tehran Science and Research Branch s.ghezelahmad@srbiau.ac.ir

Abstract

Teaching geometry is very important because it is considered as a tool for understanding, describing and interacting with the space in which we live and is one of the most intuitive and tangible parts of mathematics that can establish a mathematical connection with the real world. Therefore, the aim of the present study is to study the content of geometry textbooks in tenth grade mathematics based on the model of William Rumi. The research population is the tenth grade geometry textbooks from 1400-1401. All geometry textbooks were examined and analyzed as a sample by censusing the content of texts, questions and images of tenth grade geometry textbooks. The analysis includes text, images, and exercises at the end of the tenth grade geometry textbook lessons based on active and inactive categories with the William Rumey formula, and their analysis and engagement coefficients are determined.The student engagement rate with the entire tenth grade textbook text is 1.7, which indicates that the text of the book has fully engaged the student with learning. In terms of images, the student engagement rate in the tenth grade textbook is 1.53, which indicates that the book is at a desirable level in terms of the activity of the images. Also, the engagement coefficient of the exercises at the end of the tenth grade textbook lessons is 1.21, which indicates that the exercises are active and fully engage the student, and also that the different parts of geometry textbooks in secondary school have a good balance.

Keywords: Content analysis, geometry, tenth grade, William Rumey

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Research Article

Strategies for Organizing Urban Neighborhoods (Case Study: Alavi Neighborhood, Ahvaz)

Somayeh Tarafi

Master's Graduate, Payame Noor University, Ahvaz-Ozarmahdi99@gmail.com

ABSTRACT

In the current rapid development of cities, the management and organization of all emerging issues and complexities stem from failures in urban management. One such issue, which has added to the multitude of urban management problems and has worsened due to the current trend of urbanization, is the crisis of informal settlements. This issue demands urgent attention and must be addressed fundamentally within the framework of urban management. The primary goal of this study is to lay the groundwork for improving environmental conditions sustainably, promoting health, security, hope, faith, and human dignity in informal settlements. The research method is descriptive-analytical. The findings indicate that the best approach to initiating a new development process in these communities is through physical organization, with empowerment strategies being implementable. Comprehensive and active participation, along with institutionalized capacity-building, can sustain and expand tangible and interim physical improvements. Social learning processes, combined with collective solidarity and a sense of place, can foster security, silence, and hope for the future. Recognizing the priorities of low-income groups in the planning system is one of the first steps to address this issue. By understanding the economic behaviors and internal dynamics of low-income living systems, solutions for housing and related issues can be identified. Through studying the social, economic, and physical nature of settlements and their internal capacities, their organization and empowerment can be achieved.

Keywords: Informal settlements, neighborhood organization, urban neighborhoods, Ahvaz, Alavi neighborhood, Ahvaz.

Investigating the Best Approach to Empowering Alavi Neighborhood in Ahvaz

Somayeh Torfi

1 Master's Graduate, Payame Noor University, Ahvaz-Email: ozarmahdi99@gmail.com

ABSTRACT

The overarching objective of this research is to lay the groundwork for improving environmental conditions in a sustainable and process-oriented manner to foster health, security, hope, faith, and human dignity in existing informal settlements. The research method employed in this study is descriptive-analytical, where data collected from written documents and sources were organized according to the research title and its inherent nature. The findings indicate that the most effective means of initiating modern development processes in these communities is through their physical organization, within which the strategy of empowerment can be implemented. Comprehensive and active participation, along with institutionalized capacity-building based on tangible and incremental achievements in physical upgrading, is sustainable and scalable. A social learning process, combined with collective solidarity and spatial belonging, can cultivate security in silence and hope for the future. Recognizing the priorities of low-income groups in the planning system is among the primary solutions to address this issue. To this end, understanding the economic behaviors and internal dynamics of low-income living systems for housing and devising solutions in this direction is essential. By studying and understanding the social, economic, and physical nature of settlements and their internal capacities, their organization and empowerment can be achieved.

Keywords: Informal settlements, neighborhood structuring, urban neighborhoods, Ahvaz, Kuy-e Alavi in Ahvaz.

Assessment of occupational hazards of petrochemical construction workers in Makran Chabahar by JHA method

Shahab Kadkhodaei, ,1, Babak Khammari Sani ,2,

1- MSc, Health, Safety and Environmental Engineering (HSE), Faculty of Basic Sciences and New Technologies, Electronics Branch, Iran, Shahab.kadkhodai@gmail.com.

2- PhD, Civil Engineering, Faculty of Technology and Engineering, Science and Research Branch, Iran, Babak.khamar@gmail.com.

Abstract

Job hazard assessment in petrochemicals helps to discover and identify hazards in the workplace and appropriate safety measures are taken to prevent accidents and physical and mental injuries to employees. Therefore, this study was conducted with the aim of determining the occupational hazards of construction workers in Makran-Chabahar Petrochemical Company using the JHA method. This descriptive-analytical study was conducted in 1402. To carry out this study, after conducting documentary studies and field visits, the hazards related to each job in Makran-Chabahar Petrochemical Company were determined and then the risk level of each hazard was estimated using the JHA method. In this study, 18 different administrative and operational jobs (jobs whose harmful factors were measured and the results were available) were examined. Finally, control strategies were presented to reduce the estimated risks. The results showed that in jobs related to construction in the petrochemical industry, there are numerous hazards, including accidents caused by explosions and fires, contact with hazardous chemicals, lack of oxygen, gassing, electrocution, falling objects on people, falling from heights, and physical injury. Therefore, of the total identified hazards, 27.87% of the hazards were at an acceptable level, 38.89% of the hazards were at a low level, 16.67% of the hazards were at a medium level, 5.56% of the hazards were at a significant level, and 11.11% of the hazards were at a very significant level in this petrochemical industry. As a result, by determining the occupational hazards of construction workers in Makran-Chabahar petrochemical industry using the JHA

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method, effective safety measures can be provided to reduce hazards and accidents in the workplace of this industry. In this way, attention to the health and safety of workers will increase, and it will be possible to improve working conditions and carry out petrochemical work in this region.

Keywords: Occupational hazards, construction, petrochemical, JHA method

The cytotoxic effects of different polycyclic aromatic hydrocarbons on the antioxidant function of the cultivated hepatocytes from Acanthopagrus arabicus: a comparative study Insert Title here

Samira Jalalipour

Master of Science, Faculty of Oceanography, Khorramshahr University of Marine Sciences and Technologies, Khorramshahr, Iran, Email: dr.samira.jalalipoour761@gmail.com

ABSTRACT

The present study aimed to compare the toxicity of different polycyclic aromatic hydrocarbons, including naphthalene, phenanthrene, pyrene, and benzo(a)pyrene (B(a)P), on viability and the antioxidant function of cultivated hepatocytes from Arabian sea bream (Acanthopagrus arabicus) in vitro. Cultivated hepatocytes from A. arabicus were exposed to different but equal concentrations of four pollutants, including 0 (control), 10-2, 10-1, 1, 10, 102 and 103 µg/ml (in 0.01% DMSO) for 48 h. The results showed that the sensitivity of cultivated hepatocytes to all four pollutants increased in a dose-dependent manner; although, the toxicity of low concentrations of all four pollutants did not show a significant difference with the control cells. Cultured hepatocytes exposed to the highest concentrations of all studied pollutants showed the lowest levels of total antioxidant capacity (TAC) and glutathione content (GSH) and the highest levels of lipid peroxidation (LPO) and alanine transaminase (ALT) activity after 48 h. Naphthalene and B(a)P showed the highest and lowest toxicity, respectively. The level of cytotoxicity, cell viability and the level of antioxidant enzymes as well as liver damage indicator enzymes in the present study were mainly affected by naphthalene followed by phenanthrene, and pyrene and B(a)P had less effect. In conclusion, although all PAHs are able to suppress the antioxidant defense system, PAH compounds with lower molecular weight and fewer benzene rings have a more potential to inhibit antioxidants and increase the level of lipid peroxidation due to their more ability to pass through cell membranes.

Keywords: Naphthalene, Phenanthrene, Pyrene, Benzo(a)pyrene, Acanthopagrus arabicus, total antioxidant capacity, liver enzymes, glutathione

Evaluating the Impact of Noise Exposure on Safe Behavior and its Association with Psychological Distress among Welding Workshop Workers in Zahedan

Hossein Kamani1, Mahnaz Nasrabadi2, Shima Nakhei1, Ali Azari3,4, Sajedeh Fardin2*, Hossein Moein1*

1*Infectious Diseases and Tropical Medicine Research Center, Research Institute of Cellular and Molecular Sciences in Infectious Diseases, Zahedan University of Medical Sciences, Zahedan, Iran

2 Department of Environment, Faculty of Engineering, Zahedan Branch, Islamic Azad University, Zahedan, Iran

3 Research Center for Environmental Pollutants, Qom University of Medical Sciences, Qom, Iran.

4 Environmental Health Engineering, School of Public Health, Qom University of Medical Sciences, Qom, Iran.

***Corresponding Author: Sajedeh Fardin, Email: sajedeh.fardin74@gmail.com**

ABSTRACT

Introduction: Workplace noise pollution is a significant issue that profoundly affects the health of the workforce, exerting numerous direct and indirect effects on workers' physical and mental well-being in both the short and long term. A substantial portion of Iran's workforce is employed in small industries, with the welding industry being one such noise-polluted sector that employs a considerable number of this category of employees. The present study aimed to determine the impact of noise exposure on safe behavior and its association with psychological distress among welding workshop workers in the city of Zahedan.

Method: In this descriptive-analytical cross-sectional study, individual noise exposure levels were measured at workstations using the ISO 9612 standard method and a TES 1353S noise level meter. In addition, personal data were collected using a demographic questionnaire, a Safety Behavior Questionnaire, and the Kessler Psychological Distress Scale (K10). The collected data were analyzed using SPSS version 23.

Results: In the present study, conducted on 110 male employees working in welding workshops with a mean age of 34.29 ± 9.86 years and a mean work experience of 9.87 ± 6.06 years, 65.5% of the participants were married, and 63.6% reported using hearing protection devices during work. The mean individual noise exposure level was 87.56 ± 3.81 dB, the mean score of safe behavior was 70.15 ± 14.59, and the mean score of psychological distress was 20.63 ± 9.14. Pearson's correlation coefficient showed a significant reverse association between the mean scores of noise exposure and safe behavior ($p < 0.001$, $r = -0.41$), a significant direct association between the mean scores of noise exposure and psychological distress ($p < 0.001$, $r = 0.638$), and a significant reverse association between the mean scores of safe behavior and psychological distress in the participants ($p = 0.0011$, $r = -0.321$). In this study, the mean score of safe behavior exhibited statistically significant differences with demographic variables, including age, work experience, monthly income, education level, and the status of using personal protective equipment (PPE) during work, but no significant differences with other demographic variables, including marital status, second job, and smoking. Additionally, the mean score of psychological distress indicated statistically significant differences with demographic variables, including monthly income, education level, and marital status, but no statistically significant differences with other demographic variables, including age, work experience, second job, smoking, and the status of using PPE during work.

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Discussion and Conclusion: The results of the noise exposure assessment reveal the unfavorable status of small welding workshops regarding noise health. Considering the impact of noise exposure and the role of education levels on safe behavior and the level of psychological distress in the workplace, it appears that providing solutions and implementing noise control interventions in the workplace, as well as educational programs, can ensure individuals' proper performance in noisy environments.

Keywords: Noise exposure, Safe behavior, psychological distress, Welding workshop

The Impact of Neonatal Individualized Developmental Care and Assessment Program (NIDCAP) on Occupational Health and Safety in Neonatal Intensive Care Units

Hirad Houjaghani1, Camellia Akhgarjand2, Reza Behmadi3,*

1 Faculty of Medicine, Iran University of Medical Sciences (IUMS), Tehran, Iran

2Department of Clinical Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences, Tehran, Iran.

3 Firoozabadi Clinical Research Development Unit (FACRDU), Department of Pediatrics, School of Medicine, Iran University of Medical Sciences, Tehran, Iran

ABSTRACT

The Neonatal Individualized Developmental Care and Assessment Program (NIDCAP) has emerged as a pioneering approach in neonatal care, aimed at improving outcomes for preterm infants. While its benefits for infant development are well-documented, the implications of NIDCAP for occupational health and safety in Neonatal Intensive Care Units (NICUs) have received less attention. This review explores the impact of NIDCAP implementation on the work practices, well-being, and safety of NICU staff.

NIDCAP's emphasis on minimizing environmental stressors and individualizing care has led to significant changes in NICU environments and care practices. These changes have potential benefits for staff, including reduced physical strain, improved ergonomics, and decreased noise exposure. Additionally, the program's focus on interdisciplinary collaboration and family involvement may enhance job satisfaction and emotional resilience among healthcare workers.

However, the transition to NIDCAP is not without challenges. Initial implementation can introduce new stressors as staff adapt to new practices and mindsets. This review discusses these challenges and their implications for occupational stress and workload management.

Furthermore, this paper examines how NIDCAP necessitates a reevaluation of occupational health policies in NICUs, including training programs, ergonomic assessments, and stress management initiatives. It also identifies areas for future research, such as long-term occupational health outcomes, cost-benefit analyses, and cultural adaptations of NIDCAP.

In conclusion, while primarily focused on infant care, NIDCAP has significant potential to enhance the occupational health and safety landscape in NICUs. By recognizing and leveraging these dual benefits, healthcare systems can work towards creating environments that optimize outcomes for both preterm infants and the professionals who care for them.

Keywords: NIDCAP, developmental care, occupational health, neonatal intensive care unit, healthcare worker safety, work practices

The Effects of Probiotics and Prebiotics on Glycemic Control in Diabetes: a narrative and Meta-Analysis study

Dorsa Ghafouri*

[1]Department of Nutrition, Science and Research Branch, Islamic Azad University, Tehran, Iran

Abstract:

One of the most important therapeutic areas in the management of this persistent, progressive illness that substantially contributes to the global health burden is glycemic control. Recently, probiotics and prebiotics have emerged as complementary therapies for diabetes, aiming at the composition and function of gut microbiota. These microbiome-modulating agents are considered instrumental in improving metabolic health through enhanced glucose homeostasis and insulin sensitivity. The key focus of the present narrative review is the research into the effects of probiotics, prebiotics, and synbiotics on several aspects of metabolic health in diabetic patients, concerning glucose metabolism, inflammation, and insulin sensitivity. A literature review was conducted for the period between 2010 and 2024 using the following databases: ScienceDirect, Springer, Google Scholar, and PubMed. Based on the results, such interventions may provide new strategies to improve glycemic control in patients with T2DM through inflammatory mechanisms, gut-derived metabolites, and other metabolic pathways. In addition, these nutraceuticals might confer broader benefits beyond simple glycemia control-such as modifying lipid levels and reducing systemic inflammation-both of which are crucial for metabolic syndrome management and the prevention of diabetes complications. While the evidence seems promising at this point, this review is a call to the need for further long-term studies to establish the sustained efficacy and safety of such microbiome-targeting therapies. Therefore, continued research will be needed to fully establish their therapeutic potential and to further develop their clinical use for the treatment of diabetes.

Keywords: *Probiotics, Prebiotics, Synbiotics, Glycemic control, Diabetes, Gut microbiome, Glucose homeostasis*

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Starters: The Key to Ensuring Safety and Enhancing Quality in Semi-Fermented Meat Products like Salami and Chorizo

Hesam MoradianNejad[1]*, Zahra Teymouri[2], Mina Abdanpour[3] and Ghazal kalantari[4]

1. PhD, Food Science and Technology, Meat Products Research and Development Group, Tanis

2. PhD Candidate, Food Science and Technology, Meat Products Research and Development Group, Tanis

3. MSc, Food Science and Technology, Meat Products Research and Development Group, Tanis

4. MSc student, Food Science and Technology, Meat Products Research and Development Group, Tanis

*Corresponding Author: Hesam.moradian.nejad@gmail.com

ABSTRACT

Increasing consumer awareness and expectations have driven the production of higher-value-added semi-fermented meat products, resulting in a notable rise in the number of production units for these products. Semi-fermented products continue to be recognized as an effective approach for enhancing the safety and quality of meat products. Starters-specific microorganisms used in the fermentation of semi-fermented products, such as salami play a critical role in accelerating the fermentation process, promoting safety by inhibiting undesirable microorganisms, extending shelf life, ensuring product consistency, and improving the final product quality. This study emphasizes the importance of carefully selecting starters based on technological and safety attributes, presenting starters as a sustainable and effective solution within the semi-fermented meat industry. However, it is important to note that using starters alone cannot address all potential pathogens-related issues; continuous and precise monitoring throughout the production stages is essential. Starter cultures must be selected according to their intended application, as their performance is influenced by product type, applied technologies, maturation time, and raw materials.

Keywords: Fermented sausages, Probiotics, Bacteriocins

A review of the application of microfluidic nanosensors in the food industry

Sepideh Lohrasbi1, Zahra Teymouri,1 and Hajar Shekarchizadeh2

1-PhD student in Food Technology, Department of Food Industry, Faculty of Agriculture, Isfahan University of Technology, Iran

2-Associate Professor, Department of Food Science and Engineering, Faculty of Agriculture, Isfahan University of Technology, Iran

Abstract

Food safety and health are very important issues in the food and agricultural industries because they are directly related to human health. Health concerns about additives and chemical residues in food have created the need to develop fast, sensitive, and reliable methods to detect these hazards. Microfluidics is an emerging technology that has the advantage of detecting food components in an effortless and fast way. Microfluidics technology is the knowledge of using and controlling very small amounts of fluid on a microscale, which reduces costs and testing time, and therefore has received attention in research departments of various industries, especially the food industry. The most significant applications of microfluidics technology in the food industry include the identification of pathogens and toxins in food, the use of antibiotics in the dairy industry, the creation of new textures and structures in food, and the production of nanosuspensions, nanoemulsions, and nano microencapsulation, all of which offer significant advantages over conventional methods.

Keywords: Safety and Health, Microfluidics, Pathogens, Nano.

Relationship Between Transformational Teaching and Work Engagement Among Elementary School Teachers in Hashtroud County

Morteza Sattari1,* - Amirhossein Mohammad Davoudi2

1 Master of Educational Sciences, Curriculum Planning, Islamic Azad University, Central Tehran Branch, Morteza.ta1992@gmail.com

2 PhD in Educational Administration, Associate Professor, Department of Educational Administration, Islamic Azad University, Saveh Branch, Adavoudi838@yahoo.com

ABSTRACT

The present study examines the relationship between transformational teaching and work engagement among elementary school teachers in Hashtrud County. This research is descriptive-correlational, applied in terms of purpose, and employs field methods for data collection. The statistical population consists of all elementary school teachers in Hashtrud County (both formal and informal) during the 2022-2023 academic

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year, totaling 486 individuals (294 women and 192 men). The sample size was determined using the Krejcie-Morgan table, with 215 participants (130 women and 85 men) selected through proportional stratified random sampling. Data collection instruments included the Salanova-Schaufeli Work Engagement Questionnaire and Beauchamp's Transformational Teaching Questionnaire. The validity of these instruments was confirmed by university professors and educational specialists, while reliability was assessed using Cronbach's alpha coefficient, yielding values of 0.943 and 0.945, respectively. Data analysis employed descriptive statistics (frequency, mean, standard deviation, etc.) and inferential statistics (simple linear regression and simultaneous multiple regression) using SPSS26 software. Research findings indicated a correlation of 0.603 between transformational teaching and work engagement. Results further showed that a one-unit increase in idealized influence adds 0.354 to the work engagement score, while a one-unit increase in inspirational motivation adds 0.268 to the work engagement score. The results demonstrate a positive relationship between teachers' use of transformational teaching and their work engagement.

Keywords: Transformational Teaching, Work Engagement

Relationship Between Transformational Teaching and Organizational Optimism Among Elementary School Teachers in Hashtroud County

Morteza Sattari1,* - Amirhossein Mohammad Davoudi2

1 Master of Educational Sciences, Curriculum Planning, Islamic Azad University, Central Tehran Branch, Morteza.ta1992@gmail.com

2 PhD in Educational Administration, Associate Professor, Department of Educational Administration, Islamic Azad University, Saveh Branch, Adavoudi838@yahoo.com

ABSTRACT

The present study examines the relationship between transformational teaching and organizational optimism among elementary school teachers in Hashtrud County. This research is descriptive-correlational, applied in terms of purpose, and employs field methods for data collection. The statistical population consists of all elementary school teachers in Hashtrud County (both formal and informal) during the 2022-2023 academic year, totaling 486 individuals (294 women and 192 men). The sample size was determined using the Krejcie-Morgan table, with 215 participants (130 women and 85 men) selected through proportional stratified random sampling. Data collection instruments included Seligman's Organizational Optimism Questionnaire (1998) and the Transformational Teaching Questionnaire (Beauchamp, 2010). University professors and educational specialists confirmed the validity of these instruments, while reliability was assessed using Cronbach's alpha coefficient, yielding values of 0.943 and 0.945, respectively. Data analysis employed descriptive statistics (frequency, mean, standard deviation, etc.) and inferential statistics (simple linear regression and simultaneous multiple regression) using SPSS26 software. Research findings indicated a correlation of 0.306 between transformational teaching and organizational optimism. Results further showed that a one-unit increase in individual consideration adds 0.258 to the organizational optimism score. The results demonstrate a positive relationship between teachers' use of transformational teaching and their organizational optimism. Among the dimensions of transformational teaching, individual consideration has an impact on organizational optimism.

Keywords: Transformational Teaching, Organizational Optimism

Exploring the Impact of AI-Driven Personalized Learning on Underrepresented Student Groups

Sina Olfati

Department of Education, Farhangian University, Tabriz, Iran

ABSTRACT

This study investigates the impact of AI-driven personalized learning tools on engagement and academic performance among underrepresented student groups. Utilizing platforms such as SmartLearning, EduAI, and LearnMate, the research reveals a significant 30% increase in student engagement and a 15% improvement in academic outcomes. Qualitative feedback highlights the importance of personalized feedback and culturally relevant content in fostering student motivation and ownership of learning. Despite these positive findings, challenges such as access to technology, varying levels of digital literacy, and the need for pedagogical alignment remain critical barriers to effective implementation. The study emphasizes the necessity for a multifaceted approach involving educators, policymakers, and technology developers to ensure equitable access and maximize the benefits of AI in education. Future research directions include exploring the long-term effects of personalized learning tools and addressing ethical considerations related to AI algorithms in educational contexts.

Keywords: AI-driven learning, personalized learning, engagement, academic performance, underrepresented students, educational technology, digital literacy, culturally relevant content, equity in education, educational outcomes

Suicidal Ideation in Veterans: It's Relationship with Emotional Ambivalence and PTSD Symptoms

Dena Alizadeh Gharebaghi1, Rasoul Heshmati2

1- Master of Clinical Psychology, University of Tabriz, dena.alizadeh@yahoo.com

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2- Associate Professor of Clinical Psychology, University of Tabriz, psy.heshmati@gmail.com

Abstract

The aim of this study was to investigate the relationship between ambivalence in emotional expression and symptoms of posttraumatic stress disorder with suicidal ideation. In a descriptive-correlational and cross-sectional study, 100 veterans were selected conveniently and responded to the Beck Suicidal Ideation Scale, King and Emmons Ambivalence in Emotional Expression Questionnaire, and Kian et al. Posttraumatic Stress Disorder Scale. Pearson correlation coefficient and structural equation modeling methods were used to analyze the data. The findings showed that the relationship between ambivalence in emotional expression and suicidal ideation is not direct and significant. The findings also showed that symptoms of post-traumatic stress disorder have an effect on suicidal ideation. The findings support the fit of the hypothesized structural model of this study.

Keywords: Ambivalence, Emotional Expressiveness, Post-Traumatic Stress Disorder, Suicidal Ideation

The Effects of Cushioning Shoes on Running Biomechanics and Injury Risk

Mohammad Bagher Afshar Naseri1*,

*1 Islamic Azad University Tehran North Branch, Exercise Physiology Department, Tehran, Iran

ABSTRACT

Cushioning shoes have gained popularity among athletes due to their potential to reduce impact forces and enhance performance. However, their effects on running biomechanics and injury risk, particularly concerning anterior cruciate ligament (ACL) injuries, remain unclear, while training for practical enhancement out of the field like enhancing endurance or simply active cooldown sessions. This literature review examines the influence of maximal cushioning footwear on running biomechanics and explores the implications for ACL injury risk in runners and athletes engaged in contact sports such as American football and soccer. By synthesizing current research, the author aims to provide insights into whether maximal cushioning shoes may mitigate or exacerbate biomechanical factors associated with ACL injuries. Findings suggest that while maximal cushioning shoes may alter lower limb kinematics and kinetics, the relationship with ACL injury risk is complex and warrants further investigation.

Keywords: Running biomechanics, ACL injury, Injury risk, Contact sports

The Last Qanat -Case Study: Examination of the History of the Qanat of River in Jozdan, Najafabad - Isfahan

Morteza Ghazanfarpour*, Zahra Mardani

*Corresponding Author, Water Resources Expert of the Zayandehroud River Basin and CEO of the Mirab Zayandehroud Company

m_ghazanfarpour@yahoo.com (Corresponding Author)

PHD Student, Water Engineering and Management, Faculty of Civil Engineering, Isfahan University of Technology, Isfahan.

Z.Mardani@cv.iut.ac.ir

Abstract

Despite the permanent access of residents in the Zayandehroud River basin to surface water resources from this only river in the Central Plateau of Iran, qanats have played a significant role in providing water for agriculture, horticulture, drinking, sanitation, and traditional industries in this basin, such as supplying the necessary energy for operating water mills in agricultural processing industries. The qanats in the Zayandehroud basin mainly consist of plain or lowland qanats with underground water sources and mangal qanats with surface water resources from the Zayandehroud River and its tributaries.

Since 1940 up to, with the advent of pumping technology, the development of irrigation, drainage, and watershed management industries, as well as the prevalence of drilling shallow and semi-deep wells followed by deep wells, the industry of constructing, operating, and maintaining qanats and the process of water supply through these channels has declined. In one of the main regions of this industry, namely Isfahan and the Zayandehroud plain, due to neglect and lack of proper maintenance or declining groundwater levels and drying up rivers and surface water sources, qanats have gradually become obsolete and abandoned. This paper will discuss the history of the last qanat in the Zayandehroud plain.

Keywords: Zayandehroud River, qanats, groundwater, Isfahan.

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A review of data quality methods in EHRs related to cardiovascular diseases

Dr.Sayyed Muhammad Saeed Ghiasi1, AbbasAli Ghaeimi2, Zohre Parvardeh3, Mohammad Hossein Kazemi4,Sara Hemmat Zadeh Zare*5

1-Head of Jamaran Heart Hospital

2-Management of Jamaran Heart Hospital

3-Quality improvement Manager of Jamaran Heart Hospital

4-Support Manager

5-Computer Engineer, Responsible for Artificial Intelligence (AI) of Jamaran Heart Hospital

HemmatZadeh.Zare@gmail.com

ABSTRACT

One of the leading causes of mortality worldwide today is the occurrence of arterial events such as myocardial infarction, stroke, fainting, and other conditions that result in heart failure and premature death. Diagnosing cardiovascular diseases based on symptoms poses a significant challenge in the current global context, and if not detected in time, these conditions can become a major cause of mortality. Therefore, it is essential to utilize intelligent technologies with robust internet-based infrastructures to notify healthcare providers and medical staff of abnormal conditions as a preventive and warning measure before catastrophic events occur. The smart transformation of the healthcare industry, through the implementation of advanced technologies and intelligent systems for recording and maintaining medical data, leads to increased treatment efficiency, enhanced service delivery to patients, higher hospital revenue, quicker and more efficient access to and storage of patient information on a large scale and for extended periods, continuous patient monitoring, remote healthcare, reduced patient visits, and lower treatment costs. Considering the large-scale collection and storage of health data in the medical field, the present study aims to explore the benefits of electronic health records (EHR), review the methods and dimensions of evaluating data quality for the reuse of EHR data, and examine proposed solutions to improve health data quality and support the smart transformation of hospitals.

Keywords: Authentication, Data quality, Digital signature, Electronic Health Records, Smart Hospital.

The Relationship Between Tax Avoidance and Audit Quality with the Financial Performance of Companies Listed on the Tehran Stock Exchange

Hossein Houshyare

1-M.A. Student in Accounting, Islamic Azad University, Hamedan Branch (hosseinhsy@gmail.com)

Abstract

The main objective of this study is to investigate the effect of tax avoidance and audit quality on the financial performance of companies listed on the Tehran Stock Exchange during the period 2018 to 2023. Tax avoidance, which is considered a strategy to reduce tax expenses, may influence the financial performance of firms. Meanwhile, audit quality—by enhancing transparency and serving a supervisory role—may moderate or strengthen this effect. This applied and descriptive-correlational research was conducted using financial statement data from 112 companies, analyzed through EViews software. Return on Assets (ROA) and Return on Equity (ROE) were employed as indicators of financial performance. Tax avoidance was measured by the ratio of tax paid to pre-tax profit, while audit quality was assessed through variables such as the size of the audit firm, auditor's industry specialization, and auditor tenure. To analyze the data, multivariate regression models were used along with normality tests, multicollinearity (VIF), Durbin-Watson statistics, and correlation coefficients. The findings indicate that tax avoidance has a positive and significant impact on both ROA and ROE. Furthermore, audit quality significantly moderates the relationship between tax avoidance and financial performance, such that in companies audited by high-quality auditors, the positive effect of tax avoidance is amplified. These results highlight the crucial role of audit quality in optimizing the outcomes of tax strategies and emphasize the need for policymakers to consider the supervisory and informational dimensions of auditing alongside financial policy formulation.

Keywords: Tax Avoidance, Audit Quality, Financial Performance, ROA, ROE, Tehran Stock Exchange, Regression Analysis