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A NEW ALGORITHM APPROACH FOR THE RETRIEVAL OF SNOW DEPTH USING PASSIVE MICROWAVE SATELLITE DATA

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ABSTRACT

Snow depth retrieval algorithms from passive microwave satellite data have been trained and tested using station-measured snow depth. Although locally accurate, station measurements are sparce in many remote areas of the globe. In addition, the over-reliance on ground truth data is not a good algorithm development practice. Unlike station-measured snow depth, snow reanalysis data such as those developed at European Center for Medium-Range Weather Forecasts (ECMWF) and NOAA's National Centers for Environmental Prediction (NCEP) are essentially complete. These are high quality global snow data produced by employing advanced blending techniques of land surface models and observations. To take advantage of snow reanalysis data, a new satellite snow depth retrieval concept has been conceived that will rely on reanalysis data for training new algorithms and station data for testing, evaluation and monitoring. Another change in our approach is the development of regression-based algorithms with spatially variable coefficients. This is a new approach and development paradigm that we are launching to develop improved satellite algorithms at NOAA/NESDIS across current and future satellite missions. Our experience has shown that it remains challenging to accurately model local terrain factors impacting the passive microwave signal by generic physical or statistical approaches. To this end, ECMWF and NCEP snow depth reanalysis data have been collected and matched up to satellite data from microwave instruments on board NOAA's Joint Polar Satellite System (JPSS) and European Space Agency's Metop-SG satellite platforms. The global matched up dataset is being analyzed to derive the set of snow depth regression coefficients.

Key words: new algorıthm, snow depth, passıve mıcrowave, satellıte data, environment, Weather Forecasts.

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EVALUATION OF PROBLEMS EXPERIENCED BY DISABLED CONSUMERS IN TOURISM DESTINATIONS AND OPPORTUNITIES OFFERED BY SERVICE PROVIDERS: SINOP EXAMPLE

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ABSTRACT

While Sinop has been the subject of many studies before, this study is important because, as a result of the examinations made in the databases, no study on disability in Sinop province has been seen in the literature. This research, which was conducted to facilitate the daily lives of disabled consumers living in Sinop and to ensure their active participation in society, sheds light on a very important issue. The main purpose of the study is to determine the obstacles and needs faced by disabled consumers living in Sinop, to evaluate the opportunities offered by service providers and to present suggestions for improvements that can be made in this area. The results of the research will both shed light on the measures to be taken to make Sinop disabled-friendly city and to increase awareness of disabled rights in our country. In line with this purpose, face-to-face interviews were conducted to determine the problems experienced by disabled consumers regardless of their disability class. Disabled consumers were reached Google forms and surveys and data was collected in this way. It is estimated that there are around 6,000 disabled people in Sinop. Data were obtained from 155 disabled consumers of different age and gender groups living in Sinop with the data collection tool used in the study. Thematic analysis method was used in the analysis of the data. Regarding the research results, it was concluded that there are many physically disabled individuals in Sinop province, there are few applications and places for the disabled, transportation facilities are inadequate, they mostly shop for food, they do not prepare a list before shopping, they do not shop without doing price research and they shop from fixed points, and they do not know their rights in case of problems.

Keywords: Disabled Individuals, Disabled Consumers, Service Providers, Problems.
JEL Codes: I30

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STEM EDUCATION AS A BRIDGE FROM HIGH SCHOOL TO UNIVERSITY: IMPLICATIONS FOR ENVIRONMENTAL SCIENCE AND CONSERVATION

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ABSTRACT

STEM education serves as a vital bridge between high school and university, particularly in preparing students for environmental science and conservation studies. By integrating science, technology, engineering, and mathematics, STEM equips students with critical skills to address complex environmental challenges. This study explores the effectiveness of STEM programs in fostering environmental awareness, practical application, and academic preparedness among high school and university students. Through a mixed-methods approach involving surveys and interviews with 250 participants, findings indicate that STEM education enhances ecological literacy, motivates students toward conservation careers, and facilitates a smoother transition to higher education. However, gaps in advanced analytical skills highlight the need for improved high school curricula to better align with university demands. The study underscores the importance of hands-on, interdisciplinary STEM activities in cultivating environmentally conscious students ready for environmental science programs and sustainable.

Keywords: STEM education, environmental science, conservation, high school transition, ecological literacy, sustainability, interdisciplinary learning, hands-on activities.

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MEDICAL GASTRONOMY: A NEW TREND FOR THE FUTURE OF THE GASTRONOMY SECTOR POST COVID-19

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ABSTRACT

This research focuses on the specific trend triggered in the field of gastronomy by the Covid-19 pandemic, known as "Medical Gastronomy." Designed as a qualitative study, this review aims to systematically examine existing literature, understand, explain, and evaluate the concept of Medical Gastronomy. In this context, the research, conducted using content analysis methodology, provides a framework to comprehend how the Covid-19 pandemic has brought about changes in the gastronomy sector and the significance of Medical Gastronomy during this period.

Key Words: Covid-19 Gastronomy, Gastronomy Trends, Medical Gastronomy.

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CURRENT STATUS AND ANALYSIS OF RECREATION MANAGEMENT DEPARTMENTS IN TURKEY

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ABSTRACT

The advances in science and technology and the problems in individuals' lives have caused an increase in free time. This increased free time has led to the desire of individuals to spend their time more efficiently and with better quality. Therefore, it has become clear that the needs of individuals should be met in an appropriate manner so that they can evaluate this time correctly and effectively. This process has led to the concept of "recreation" gaining importance in order to use free time valuablely. The need for specialized and educated people in this field has increased in order to evaluate free time effectively. In order to meet this need, "Recreation Management" departments have been opened in universities and this field has become an important field of education and consultancy. The existence of this department in universities has provided individuals with information on how to evaluate their free time. The aim of this study is to contribute to the field by examining the curricula of Recreation Management departments in Turkey. As a result of the examinations, it has been determined that there are Recreation Management departments in a total of 21 faculties and colleges in 20 universities in Turkey. Although it is a department where there are master's programs in 8 different universities and doctoral programs in 5 different universities and where 109 academicians work, it is expected to develop further.

Keywords: recreation, recreation management, environment, Universsity.

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EVALUATION OF EFFECTIVENESS INDICATORS OF THE APPLICATION OF FOLIAR FERTILIZERS IN THE SUSTAINABLE ECONOMIC DEVELOPMENT OF WHEAT WINTER PRODUCTIVITY

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ABSTRACT

The paper introduces the investigation results on the influence of seed treatment by plant growth stimulant Vita Cereals and foliar feeding by Nanovit Cereals and Urea ammonium nitrate on the winter wheat plants' growth, development, yield and grain quality indicators. It has been established that foliar feeding plays a vital role in all critical winter wheat life cycle and growth processes, including cell division and protein synthesis, as well as increasing enzyme activity. The research was conducted in 2023-2024 at the LLC "Organic-D" fields, Vinnytsia region, Ukraine. The study soil was a light loamy grey forest soil. In plots where winter wheat seeds were treated with Vita Cereals, the number of grains per year was 47-50, and the weight of 1000 grains in the studied varieties ranged from 37.7 to 39.5 g. The yield of the studied winter wheat varieties directly depended on the application of foliar treatments and the varietal characteristics of the wheat. Thus, when seeds were treated and foliar top dressing was applied on the experimental plots, the yield of the varieties ranged from 5.4 to 5.8 t/ha. Meanwhile, using foliar top dressing with Nanovit Cereals and Using urea-ammonia nitrate (UAN) contributes to yield formation in the Mavka IR variety at 5.9 to 6.6 t/ha. The yield of the Zira variety with the same treatments was 5.6 to 5.8 t/ha. Treatment with Vita Cereals before sowing and Nanovit Cereals micro fertiliser at the beginning of the booting stage gave the highest conditional net profit of 31280 UAH/ha (45.7 UAH per 1 euro). The profitability ranged from 113 to 121% on the control plots, while it was higher (150%) on the treated plots.

Keywords: wheat winter, environmental risk assessment, varieties, foliar fertilization, yield, grain quality, economic efficiency.

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ESTIMATION OF LEVELS OF (RN^{222}, VOCS, CO_2) IN THE AIR OF PRIMARY SCHOOLS IN BASRA GOVERNORATE, IRAQ

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ABSTRACT

The aim of this study is to evaluate the levels of Radon-222, Volatile Organic Compounds (VOCs), Carbon Dioxide (CO2) in the air of Primary Schools in Basra Governorate, Iraq. The overall mean concentration of Rn-222 in all the schools was 18.6018 ±2.537 Bq/m³, ranging from 50.7143 Bq/m³ to as low as 6 Bq/m³ Bq/m³. This value was below the safety limit of 100 Bq/m³ established by international health authorities, which suggests that the levels of Rn-222 in the majority of the schools were not dangerous. A listen to me, VOCs (which include chemicals such as benzene, toluene and formaldehyde) were present in varying amounts in the schools. Average VOC concentration was 322.0721 ± 34.795 (ppb) Maximum concentration was 590.06 (ppb) in some classes, mainly in poorly ventilated rooms. CO2 values were used as ventilation effectiveness. Average CO2 concentration value inside the classrooms was 728.4949 ±81.855 and the concentration could reach up to 1446.36 ppm in some poorly-ventilated classrooms. **parts per million anything above a 1000 pats per million would be considered an indoor air quality issue with the potential to impact student performance and health based on world-wide air quality standards. Investigation indicates that the indoor air quality (IAQ) in the primary schools in Basra was generally within an acceptable level for Rn-222. However, some schools had excessive levels of VOCs and CO2, namely, classrooms with low ventilation rates and poor air exchange. Such 'high' levels could also result in discomfort experienced by students, decreased cognitive performance and long-term health impact. The results imply that better ventilation schemes in primary schools are needed to lower outdoor air VOC and CO2 concentrations for the health of students.

Keywords: Air, Basra Governorate, Rn^{222}, VOCs, CO_2, Primary Schools, Radon Detection.

Vol. 15 (4): 53-62 (2025)

MECHANISMS FOR CONTROLLING ECONOMIC PROCESSES BY INTERNATIONAL INSTITUTIONS AND GREEN ECONOMY

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ABSTRACT

The role of international organizations in regulating the global economy is key to ensuring global stability and sustainable development. This article examines the mechanisms by which these organizations influence macroeconomic indicators, international trade, financial markets, and the processes of forming economic standards and norms. The aim of this paper is to assess the effectiveness of international institutions in the context of contemporary global challenges. Particular attention is paid to their role in supporting economic integration and stimulating development. The importance of introducing innovative approaches and digital solutions into the activities of international organizations is emphasized. The main threats, including geopolitical conflicts, climate change, and cybersecurity risks, are analyzed. The study clarifies the role of international organizations in regulating the green economy, including establishing standards and norms to ensure environmental safety, technical and financial support, sharing experience and knowledge, promoting effective interaction, and strengthening the role of civil society in solving environmental problems. The need to strengthen international coordination and develop effective strategies to respond to contemporary challenges is noted. Recommendations are made to improve the effectiveness of international institutions. Prospects for their further development and strengthening of their influence on the formation of a stable world economic order are outlined.

Keywords: global economy, foreign trade, financial stability, digital transformations in the economy, international inflation, regional economic structures, green economy, environmental safety, sustainable development.

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LOCAL LEVEL GOVERNANCE: PATTERNS, TRENDS, AND RISKS OF DECENTRALIZATION INITIATIVES IN THE FACE OF ENVIRONMENTAL CHANGES

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ABSTRACT

The paradigm of decentralisation, as an intrinsic component of transformational processes within the system of public administration, is acquiring increasing heuristic and praxis-oriented significance in the context of rethinking subsidiarity and the fiscal self-determination of subnational actors. Given the intensification of polycentric tendencies and the discursive multivariance of governance models, the necessity of a comprehensive explication of the influence exerted by the devolution of authority on the institutional architecture of local self-government becomes increasingly pronounced, with particular reference to the territorial communities of Ukraine as a heuristic sample for empirical inquiry. The methodological framework of the study incorporates an interdisciplinary approach, encompassing comparative analysis of international practices, both quantitative and qualitative evaluative methods, as well as empirical instruments of sociological reflection. The study substantiates that decentralization in the context of eco-changes involves expanding the powers of local self-government bodies in the areas of natural resource management, environmental protection, implementation of environmental initiatives, environmental monitoring, and control. It has been proven that decentralization is conceptually significant in the context of sustainable local development against the backdrop of eco-change, contributing to a more effective response to local problems and the integration of sustainable practices. The empirical findings of the study demonstrate that the implementation of decentralisation mechanisms is accompanied by a cumulative increase in the budgetary self-sufficiency of territorial communities, correlating with enhanced managerial rationality and procedural transparency. Simultaneously, several systemic dysfunctions have been identified, including disproportionate resource allocation and a pronounced deficit in the administrative competence of local leadership, which impede the effective contextualisation of decentralisation within local governance frameworks. The practical significance of the study lies in the formulation of conceptually grounded recommendations for the optimisation of intermunicipal equalisation mechanisms, the augmentation of managerial capacity among local elites, and the institutionalisation of digital instruments within the realm of public administration. The findings offer a substantive foundation for the further conceptualisation of sustainable development policies and the dynamisation of the local self-government system in the context of post-industrial societal transformations.

Keywords: subnational jurisdiction, institutional decentralisation, territorial community, municipal synergy, managerial capacity, fiscal federalism, public policy, eco-changes, local environmental initiatives, sustainable practices.

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TRADITIONAL KNOWLEDGE IN VIETNAM AND ITS CONNECTION TO ENVIRONMENTAL DIPLOMACY INNOVATION

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ABSTRACT

Vietnam, a Southeast Asian nation with a diverse culture, possesses extensive traditional knowledge across various fields, such as agriculture and herbal medicine. The protection, maintenance, and development of this knowledge profoundly impact the environment, particularly in the context of climate change. Over the past decade, Vietnam has joined three new significant agreements with environmental commitments: the Paris Agreement, CPTPP, and EVFTA. These treaties include provisions for the protection of traditional knowledge and environmental conservation. However, Vietnam's legal framework to meet these treaties' standards remains unstable and incomplete. This inadequacy leads to insufficient protection of traditional knowledge, contributing to issues affecting climate change. Therefore, the improvement of legal rules and policy on traditional knowledge protection will create the innovation of Vietnam's environmental diplomacy pursuant to the joint relevant new free trade agreements.

Keywords: Traditional knowledge (TK), Environmental Diplomacy, Geographical Indications (GI), Biodiversity Conservation, Genetic Resources, Vietnamese Legislation, EVFTA, CPTPP

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INSTITUTIONALIZING STATE-BUSINESS-CIVIL SOCIETY PARTNERSHIPS FOR REGULATING TERRITORIAL DISPARITIES UNDER SYSTEMIC INSTABILITY: A PATH TO SUSTAINABLE AND ENVIRONMENTALLY RESILIENT REGIONAL DEVELOPMENT

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ABSTRACT

This study investigates the institutionalization of state-business-civil society partnerships as a strategic mechanism for regulating territorial disparities in the context of prolonged systemic instability, with a particular focus on sustainable and environmentally resilient regional development. Drawing on theoretical foundations in institutional economics and multilevel governance, the paper explores how such partnerships contribute to building sustainable territorial systems, strengthening local energy and environmental planning, and enabling adaptive responses to socio-economic and ecological challenges. Using Ukraine as a case study—where decentralization reforms and wartime disruptions intersect—the research analyzes how collaborative governance models influence equitable access to sustainable infrastructure, green technologies, and inclusive service provision. The findings reveal that institutionalized partnerships can facilitate a localized energy transition, promote ecological modernization, and reduce regional asymmetries when supported by coherent policy frameworks and stakeholder engagement. The study contributes to the growing body of literature on environmental governance in crisis settings and offers policy recommendations for leveraging partnership-based models in advancing territorial sustainability.

Keywords: territorial disparities, sustainable development, environmental governance, institutional partnerships, systemic instability, regional resilience, energy planning, Ukraine

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SUSTAINABLE DEVELOPMENT: THE METHODOLOGY OF COMBINING LAW, ECONOMICS, ECOLOGY AND POLITICS

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ABSTRACT

The article is devoted to the concept of the need to strike a balance between meeting the current needs of humanity and protecting the interests of future generations, including their need for a safe and healthy environment. Numerous works by scientists over a period of more than half a century show that this issue will continue to concern humanity, and therefore the analysis of the methodological foundations of combining law, economics, ecology and politics is now again relevant. The article reveals the general laws and methods of economics and ecology through the prism of combining law and politics. On this basis, the potential and risks of sustainable development are identified. It is proposed that the main priorities of the policy of sustainable development of a democratic society be based on universal human values and the need to form a noosphere civilization. In this regard, it is envisaged to simultaneously solve a number of tasks and goals based on the methodology of combining law, economics, ecology and politics for the purposes of sustainable development.

Keywords: sustainable development, law, policy, economic development, consumption, principles, environmental requirements, environmental infrastructure.

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THE USE OF DRONE/UAV TECHNOLOGY IN PRECISION FORESTRY. CASE STUDY: NATIONAL PARK DIVJAKE KARAVASTA

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ABSTRACT

This paper is a practical guide which focuses on the use of Drone UAV technology in Precision Forestry, mainly in the identification of vegetation indicators that also determine the forests health. This study represent an innovative methodology that guides and encourages the use of these technologies in decision-making, operational and managerial institutions that focus on the management and preservation of forests and protected areas. In this context, a model has been provided that describes the selection of the best techniques and platforms to perform geospatial analysis supported by high-resolution spectral data that support the classification of the study area according to vegetation data, plant stress indicators mainly from drought, water saturation, extreme weather conditions, etc. The purpose of this study is to identify forest areas under stress, closely related to abiotic factors through Drone UAV technology and sensors that identify chlorophyll or other indicators of plant health. Under these conditions, information on abiotic conditions such as geomorphology, soil properties, climatic conditions and hydrology (not necessarily derived from UAV surveys) is often essential to the model, and thus, part of it is to integrate the findings with other applications such as GIS Survey 123. The results of this study are based on a pilot area, namely an area near a wetland in the Divjake Karavasta National Park, Albania.

Key words: Drone UAV, Survey 123, GNSS, Preciosin Forestry, NDVI, Vegetation Indicies.

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E-PHARMACIES AND CHALLENGES FOR CONSUMER PROTECTION

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ABSTRACT

The aim of this study is to analyse modern situation with consumer protection in e-pharmacy, as well as the challenges consumer face today. The theoretical framework of this study is grounded in the principles of consumer protection, international trade law, and e-commerce regulation. It examines the interplay between the legal frameworks governing e-pharmacies and the challenges consumers face in the digital environment. The current situation with the protection of consumers buying in e-pharmacies from the point of view of the availability of legal regulation of this issue, both at the international and national levels, has been analysed. The main problems that consumers encounter are highlighted. E-pharmacies consumers are not protected today. Therefore, practical cooperation between international and national structures, between consumers and business, is important for protecting the rights of consumers in e-pharmacies.

Keywords: e-pharmacy, consumer protection, consumers, international standards, control, security, Sustainable Development Goal (SDG).

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Abstract
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LEGAL FRAMEWORK FOR THE IMPLEMENTATION OF BIOMEDICAL TECHNOLOGIES AS A DRIVER OF HEALTHCARE SYSTEM DEVELOPMENT IN UKRAINE

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ABSTRACT

The article is devoted to the analysis of the legal framework governing the implementation of biomedical technologies in Ukraine's healthcare system. To achieve this objective, the authors examined scientific sources on the regulation of biomedical technologies and analyzed relevant provisions of Ukrainian legislation. General scientific and special legal research methods were applied, including empirical, formal-logical, and comparative legal approaches.The article defines the concept of biomedical technologies and outlines approaches to launching transformational processes in the healthcare sector. It has been established that in Ukraine it is planned expansion of measures for the application of medical innovations in the fields of reproduction, additive technologies, genetics, and genomics. These measures involve public funding for in vitro fertilization cycles, genetic laboratory testing, and the promotion of innovative activities. The study reveals that, in addition to public law regulation, private law norms also play a significant role in the implementation of biomedical technologies within the healthcare system.

Keywords: biomedical technologies, healthcare, medical care, medical services, innovation, objects of civil rights, patient.

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AWARENESS AND PERCEPTION OF STUDENTS ON THEIR ROLES IN ENVIRONMENTAL PROTECTION THROUGH CONSUMER BEHAVIOR

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ABSTRACT

The aim of this study is to investigate the awareness and perception of university students on sustainable consumer behavior. The study was conducted with students of a private university located in Nicosia, the capital of Northern Cyprus, based on the principles of qualitative research methods. In the study designed as a case study, interviews were conducted with 30 students from different departments and different levels. The study used a structured interview form consisting of two parts and prepared by the researcher, and the collected data were analyzed with content analysis. The findings in this study showed that there was high awareness and sufficient perception among students on sustainable consumer behavior. The study also showed that there was sufficient understanding on the impact of sustainable consumer behavior practices. However, the study found that the number of students with sustainable consumer behavior was lower than the students who were conscious about sustainable consumer behavior and its impact on the environment. The students also mentioned the difficulties they experienced regarding the high cost of environmentally friendly products or the lack of awareness of business owners.

Keywords: environmental protection, environmentally friendly products, consumer behaviors, responsible consumption and production, sustainable communities.

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THE IMPACT OF INSECT POLLINATION ON SEED AND YIELD CHARACTERISTICS OF SUNFLOWER (*HELIANTHUS ANNUUS* L.) LINOLEIC HYBRIDS IN THE CARPATHIAN FOOTHILL ZONE OF UKRAINE

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ABSTRACT

This study examines the impact of exclusion of insect pollinators' access on the seed characteristics and yield performance of seven linoleic hybrids of *Helianthus annuus* L. developed by five seed companies (Euralis, RAGT Semences, DuPont Pioneer, Limagrain, and Syngenta). The hybrids were cultivated in the Carpathians foothill zone of Ukraine, on the fields of the company 'Continental Farmers Group' in Chernivtsi Region. We analysed the following seed characteristics: total number of seeds per head, total seed weight per head, 1000-seed weight, oil content, test weight, and biological yield. We found significant positive influence of insect pollination on seed characteristics and yield. Exclusion of pollinators led to statistically significant reductions in: total number of seeds per head (on average by ~1.2–2.7 times), total seed mass (by ~1.4–2.3 times), 1000-seed weight (by ~33–38%), oil content (by ~13–22%), test weight (by ~15–33%), and overall yield (by ~29–57%). ES Rosalia (Euralis) was found to be the most sensitive to the absence of insect pollinators, showing a significant decline across all analyzed characteristics. Among all the assessed characteristics, the total number of achenes per head was found to be the most sensitive indicator of the absence of insect pollination. Based on the results, the hybrids ES Rosalia (Euralis) and NK Brio (Syngenta) are recommended for cultivation in foothill regions, provided insect pollination is ensured.

Keywords: *Helianthus annuus L.,* sunflower, linoleic hybrids, insect pollination, entomogamy, bees, seed productivity, yield, agroecosystems.

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KEY AREAS OF DEVELOPMENT OF THE HUMAN RESOURCE MANAGEMENT ECOSYSTEM OF THE CIVIL SERVICE OF UKRAINE IN THE CONTEXT OF DIGITAL TECHNOLOGIES AND GREEN PUBLIC MANAGEMENT

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ABSTRACT

This study is dedicated to a profound analysis of the transformational paradigms in human capital management within Ukraine's public service amid the era of pervasive digitalization. The discourse emphasizes the multifaceted nature of contemporary digital imperatives in HR management systems, which include, inter alia, the algorithmization of recruitment processes, the implementation of HR analytics in synergy with Big Data, the adoption of chatbots as quasi-intelligent communicators, next-generation mobile applications, integration with cloud infrastructures, and the incorporation of artificial intelligence and virtual reality technologies into the managerial context. The institutional specifics of the digitalization of management procedures are analyzed in detail through the example of the evolution of the Career.gov.ua platform, which represents a synthetic mechanism for interaction with information and analytical resources such as Work.ua and Robota.ua, alongside the establishment of supporting infrastructure in the form of HELP DESK. The imperative for the renewal of management paradigms is substantiated, including – remote working, automation, the use of chatbots, cloud-orientation, real-time data processing, B2B tool integration, the implementation of cognitive technologies, and the formation of a new type of corporate culture based on creativity, analytical reflection, and divergent thinking. Green public management influences human resource management in the civil service by integrating environmental aspects into management strategies and practices, effective personnel management based on sustainable development principles, the introduction of environmental standards, and the development of "green" skills among civil servants. It is demonstrated that digital optimization of human capital management processes not only reduces routine tasks in data collection, systematization, and transmission but also enhances the efficiency of communication operations and improves the intensity and quality of internal corporate interfaces. The study underscores the advisability of transplanting established international HR practices, particularly in the fields of automated recruitment, HR marketing, e-learning, and SMART recruitment systems, which serve as vital vectors for the further transformation of public service. It is concluded that the integration of global digital innovations into the state HR management ecosystem is a key tool for increasing the functional efficiency of public service institutions, enhancing their performance, and aligning them with the criteria of Ukraine's European integration progress.

Keywords: public administration, public service, civil service, service in local government bodies, human resources, civil servants, local government officials, human resource management, human resource management ecosystem, digital development, digital technologies, digitalization, green public management, environmental policy, environmental standards, Green HR.

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ALLERGIC SENSITIZATION TO SESAME IN ALBANIA: PREVALENCE AND THE ROLE OF IGE CROSS-REACTIVITY AND CCDS

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ABSTRACT

Introduction: Sesame is a relatively new food product in the Albanian diet. In recent years, it has increasingly been used mainly for decorative purposes in dishes, pastries, and bread, primarily in its unprocessed form. *Objective:* The aim of this study is to evaluate the level of sesame sensitization among the Albanian population, taking into consideration age groups, gender, and other potential contributing factors. *Materials and Methods:* This is a descriptive-analytical study conducted in Tirana, Albania, from July 2023 to July 2024. A total of 682 individuals aged 0 to 86 years were included. All participants were tested for specific food IgE antibodies at the Genius Laboratory. The test panel included sesame and other common food allergens. Data analysis was performed using SPSS version 21. *Results:* Based on laboratory testing of specific IgE, the prevalence of sesame sensitization was 13.2% (n=90). However, strong immune responses (IgE classes 5 and 6) were rare, observed in only 0.2% (n=2) of participants, predominantly among males. Sensitization cases were more frequently recorded during the summer season. Statistically significant associations were observed between sesame and other grains and food allergens ($p < 0.01$), indicating possible cross-reactivity or co-sensitization. This finding was supported by a positive Spearman correlation between sesame-specific IgE and CCD (Cross-Reactive Carbohydrate Determinants), with a statistically significant correlation ($\rho = 0.335$, $p = 0.000$). *Conclusion:* This study suggests that although severe allergic reactions to sesame are rare in Albania, sensitization is present and associated with factors such as age, gender, and cross-reactivity with other allergens. The assessment of CCD levels plays a critical role in the differential diagnosis between true allergic reactions and isolated sensitization. These findings highlight the need for clear diagnostic protocols and increased awareness among healthcare and educational institutions.

Keywords: Sesame, sensitization, age group, cross-reactions, specific IgE, CCD.

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PHYTODIVERSITY OF HERBACEOUS WILD VEGETATION STRIPS AS A DETERMINANT OF WILD POLLINATOR CONSERVATION

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ABSTRACT

This research was conducted within the framework of the HORIZON Europe international grant "RestPoll: Restoring Pollinator habitats across European agricultural landscapes based on multi-actor participatory approaches" and dedicated to studying the phytodiversity of herbaceous wild vegetation border strips as determinant for the conservation of wild pollinators. The taxonomic and systematic structures of species were described, a bioecological analysis of flowering species at the time of observation was performed, and their pollination types and the presence of invasive species were studied. Field research was conducted at the biological field station "Zhuchka" of Yuriy Fedkovych Chernivtsi National University, located in the city of Chernivtsi in southwestern Ukraine, near the Romanian border (approximately 40 km away). The area belongs to the Ciscarpathian region, which refers to the lands on the eastern side of the Carpathian Mountains and includes parts of Bukovina – namely, the modern-day Chernivtsi region. The floristic diversity of the wild herbaceous strips examined comprises 98 species, predominantly belonging to Magnoliophyta (99.0%), with Magnoliopsida accounting for 84.5%. Three leading families collectively represent 45.9% of all species: Asteraceae (17.3%), Poaceae (14.3%), and Fabaceae (14.3%). It was shown that a high proportion of flowering species (86.7%) were present, with a peak flowering period in July. Insect-pollinated species dominated (72.9%), of which 31% were facultative and 69% were obligate. This indicates a significant potential of the wild-growing strips as a food source for pollinators. Among the flowering plants in the wild herbaceous flora, 14 invasive species (16.5%) were identified, the majority of which (86%) are entomophilous. The summer flowering of these invasive species poses a potential threat to aboriginal flora and the stability of the pollination network.

Keywords: wild herbaceous strips, agroecosystems, vegetation, phytodiversity, systematic structure, pollination, entomophily, invasive species, threats.

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EQUILIBRIUM STUDY OF SELENIUM ADSORPTION ONTO SOME SOUTHERN IRAQI SOILS

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ABSTRACT

The thermal equilibrium of selenium adsorption at concentrations of (25, 50, 150, 300, 450, and 600) µg Se mL^{-1} was studied in eight soils with different properties from southern Iraq. Adsorption data were tested into a some of physicochemical models: Langmuir, Freundlich, Dubinin-Redushckevich (D-R) and Temkin. These equations were tested to describe selenium adsorption by calculating correlation coefficient (R^2) and Marguardt's Percent Standard Deviation (MPSD) values. The Freundlich models' superiority to describe most of the soils, recording R^2 values ranging between (0.949 -0.9935) and MPSD values ranging from (7.537-21.919). The constants of this equation, K_f, were recorded to range from (4.216-16.462) ml g^{1-} and 1/n to (0.880-1.131) µg g^{1-}. The D-R equation also provided a good description of some soils. The mean free energy of selenium adsorption on soil colloid surfaces (E) was calculated, and values ranged from (5.814-7.042) kJ mol^{1-}. The Langmuir model I and II, gave provided a successful description for only two soils (soil2-soil8) Comparing with Freundlich and D-R models, while the selenium adsorption data were not successfully described using the Temkin model.

Keywords: selenium adsorption, Southern Iraqi, soils, Environment.

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ASSESSMENT OF THERMAL COMFORT IN A SCHOOL WITH AN AIR HEATING SYSTEM

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ABSTRACT

The thermal comfort in a school with an air heating system was assessed experimentally. During representative coldest days in winter, the following microclimate parameters were measured: indoor and outdoor air temperature, supply air temperature, and the temperature of the inner surface of the outer wall. It was found that the air heating system allows maintaining the specified indoor air parameters in acceptable ranges comfortable for humans. The accuracy of maintaining the specified parameters is ensured by the quality of the ventilation system settings and automation. Even with a significantly large glazing area of the outer wall, with an air heating system, it is possible to maintain the temperature of the inner surface not only above the point and dew point temperature, but also at such a level that students sitting 0.5 m from the outer wall during classes do not feel the cold downward air flow. The occupancy of a room by people does not affect its thermal comfort, but a properly adjusted and configured air heating system is able to remove excess heat input by lowering the temperature of the supply air.

Keywords: thermal comfort, indoor microclimate, air heating system, indoor heat gain, mass presence of people, experimental assessment, school.

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PALYNOLOGICAL COMPARATIVE STUDY OF SELECTED PLANT SPECIES IN ALBANIA USING LIGHT MICROSCOPY

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ABSTRACT

This microscopic palynological research included five species (*Arabis turrita*, *Cymbalaria muralis*, *Daphne blagayana*, *Epilobium dodonaei*, and *Robinia hispida*) belonging to five different families, which were collected in various habitats, specifically in the Shebenik National Park, in the area of Tirana, and the Dajti Mountain in Tirana, Albania. The species were studied for the first time from a palynological perspective by local authors, providing new insights into the field of palynology. The study revealed that the pollen grains of the studied species belonged to different pollen classes: those of *A. turrita* are tricolpate, those of *C. muralis* are tricolporate, those of *D. blagayana* are pantoporate, *those of E. dodonaei* are triporate, and those of *R. hispida* are tricolporate. From the palynomorphological comparison of the studied species with those reported in the literature, we found that the pollen grains of *D. blagayana* are, on average, larger in diameter than those of the *mezereum* species. The pollen grains of E. *dodonaei* are smaller in size than those of the *angustifolium* species, and those of *R. hispida* are larger in all palynological features than those of the *pseudoacacia* species.

Key words: Light microscopy, tricolporate, tricolpate, triporate, psilate, reticulate.

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ECOLOGICAL ASSESSMENT OF TREE SPECIES DIVERSITY, RICHNESS AND COMPOSITION IN THE DECIDUOUS FOREST ECOSYSTEM OF DIVJAKË-KARAVASTA NATIONAL PARK

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ABSTRACT

The purpose of this study was to evaluate the tree species' variety, richness, and composition at the Divjakë-Karavasta National Park's, Argjinaturë-Shkumbin Economic Unit. Fifteen circular plots with a radius of 11.28 meters (0.1 hectares) were created from the study area. The heterogeneity in the composition of the communities under study was investigated by computing a number of tree species composition indices, such as the Shannon index (H'), Evenness index (J'), species richness (DMn), the Simpson index (D), the Berger-Parker index (d), and the Clark-Evans (R). The identification of 45 plant taxa included 11 orders, 19 genera, 15 families, 22 species, and 674 individuals. The overall research region's Shannon index value (H'=2.49) indicates that a small number of species have dominated the forest structure across all 15 locations, and many species are made up of fewer individuals. There is a good level of diversity among the forest trees across the entire test surface, as indicated by the Simpson index (D) value of 0.9. There is a significant degree of biological diversity in the areas being studied, as indicated by the research region's overall representative Berger-Parker Index value of 0.2. Information on forest structure and tree composition aids in the preservation of threatened and commercially valued species. In order to preserve the tree species, it will be essential to raise awareness of the possible ecological advantages that tree stands on farmlands may provide to the local population both inside and beyond the study area.

Keywords: tree species; biological diversity; composition; forest structure; preservation

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RESIDUAL STRESS MEASUREMENT IN ANISOTROPIC MULTILAYER COMPOSITES AND ENVIRONMENTAL EFFECTS: A COMPREHENSIVE REVIEW OF TECHNIQUES

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ABSTRACT

Residual stresses are inherent byproducts of solid material processing and persist after the removal of external loads. In polymers, these stresses emerge during processes such as film formation, where polymer chains are trapped in stressed, non-equilibrium states. In solvent-cast films, crucial across multiple technologies, such stresses can lead to microscopic flaws and dimensional instability. This review explores the origin and effects of residual stresses in thermoset polymer composites. It classifies and evaluates a wide range of residual stress measurement techniques, highlighting their recent developments. Techniques are assessed based on application context, destructive nature, scope, limitations, and advantages. The paper categorizes these stresses at micro, macro, and global levels, providing guidance to researchers on choosing appropriate methods depending on their objectives and material systems.

Keywords: residual stress, composite materials, environmental effects, thermoset polymers, measurement techniques, non-destructive testing.

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SOME ENVIRONMENTAL ISSUES IN GREEN CRIMINOLOGY: CASE STUDY IN ALBANIA

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ABSTRACT

Criminology has experienced rapid growth in the last three decades. This growth is not only in terms of its independence from other branches of science, such as Law or Sociology, but also in its increasing influence in drafting sustainable criminal policies. These developments in the science of criminology underscore the need to analyze its situation regarding environmental policies, known as green criminology, where it is perceived as not being at the highest levels of development. More specifically, we will examine whether scientific criminological thought in Albania influences the development of environmental criminal policies. Assuming we can speak of an Albanian science of Criminology, we have collected and reviewed dissertations primarily focused on an element related to the field of green criminology, which were defended at the Faculty of Law, University of Tirana. The review process is to identify and examine the hypotheses and objectives. We then examined whether scientific green criminological thought in Albania plays a role in drafting environmental criminal policies.

Keywords: green criminology, environment, criminal policy, Albania.

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CORRELATION BETWEEN PHYSICO-CHEMICAL, MICROBIOLOGICAL AND ENVIRONMENTAL FACTORS, ASSESSING THE QUALITY OF SURFACE WATERS IN THE SHKODRA REGION, ALBANIA

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ABSTRACT

The complexity of microbial populations and their habitats, their reproduction dynamics, the heterogeneity of microbial transmission pathways into aquatic systems, and the diverse nature of influencing environmental parameters necessitate an interdisciplinary research approach to address surface water quality concerns. The analysis and correlation of physico-chemical and microbiological parameters enable a better understanding of potential interventions required to maintain water quality within acceptable standards. The aim of this study was to measure and identify the relationships between microbial indicators *Faecal coliforms* (FC) and *Faecal streptococci* (FS) and key physico-chemical parameters in the waters of Lake Shkodra, the Buna River, the Viluni Lagoon, and the Adriatic Sea along the Velipoja coastline, characterized by significant spatial variability. Water samples were collected from four distinct areas: Lake Shkodra, the Buna River, Viluni Lagoon, and the coastal waters of Velipoja. The physico-chemical parameters analyzed included temperature, electrical conductivity, pH, turbidity, total dissolved solids (TDS), ammonium, phosphate, nitrites, and nitrates. Microbiological analysis targeted Faecal coliforms and Faecal streptococci using the Most Probable Number (MPN) method. A total of 660 analyses were conducted during the summer 2023 to summer 2024 period, including 120 microbiological and 540 physico-chemical measurements. As we are dealing with a small size sample we using the Spearman correlation analysis, which measures the strength and direction of association between two ranked variables. Correlation analyses were performed using the symbolic programming language MATLAB R2024b. In conclusion, anthropogenic activity and water pollution have negatively affected the physical, chemical and biological qualities of, together with climate change, the quality of surface waters of the Shkodra region. To avoid the ecological and socio-economic consequences of biodiversity loss, damage to the economy and tourism in the region and beyond, there is a clear need for more comprehensive and systematic research to protect the quality of surface waters of the Shkodra region.

Keywords: surface water quality, microbial indicators, *Faecal coliforms* (FC), *Faecal streptococci* (FS), physico-chemical parameters, Spearman correlation, Shkodra region.

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ECOLOGICALLY SUSTAINABLE DEVELOPMENT AND THE APPLICATION OF COMMON PRINCIPLES OF LAW: THE DEVELOPMENT OF LEGAL RELATIONSHIPS TO IMPROVE THE INTERACTION BETWEEN PEOPLE, SOCIETY AND NATURE

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ABSTRACT

The relevance of the research topic stems from the role and importance of the concept of sustainable development. Its implementation allows creating a society of high legal culture, capable of properly responding to all the challenges of the time and ensuring a sustainable balance within itself and in its relationship with nature. The study's purpose is connected with the systemic development of the concept of sustainable development and the justification of sustainable development as a new general principle of law. The study utilized data obtained through qualitative data collection methods. The concept of sustainable development, reflecting the static and dynamic state of society, continues to improve in view of the need to develop new evidence-based models for solving the vital problems of mankind. The study concludes that there are four components of sustainable development that need to be put into practice: economic, social, environmental, and spiritual-moral. The spiritual and moral aspect is highlighted due to the importance of the individual as a legal subject and a subject of legal relations capable of critically analyzing the surrounding reality and their own place in it. Sustainable development presents a new general principle of law that operates in public and private law. The study substantiates the need to step up efforts to develop solutions at the national and international levels, whose realization will allow to cope with environmental problems, eliminate their causes, and resolve other systemic issues related to the environment.

Keywords: ecology, environment, law, sustainable development, digitalization, natural resources.

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QUALITY MANAGEMENT, ECOLOGICAL RESPONSIBILITY AND ENVIRONMENTAL SUSTAINABILITY AT STRATEGIC, OPERATIONAL AND TACTICAL LEVELS OF THE ORGANIZATION

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ABSTRACT

The article describes a way to meet customer needs and achieve continuous quality improvement by: focusing on processes; identifying internal customers; creating a team organization; reducing hierarchy and introducing a quality management department (quality management department). Furthermore, the article examines how quality management practices integrate environmental sustainability principles across organizational hierarchies, creating synergistic relationships between operational excellence and ecological responsibility. This integration represents a critical advancement in organizational management theory that aligns business objectives with global sustainability goals. The management of the organization must precisely define most of the work tasks to be performed at different levels, but at the same time, employees must be clearly presented with the objectives and given the opportunity for their suggestions, which may be better solutions than what the management originally had in mind. Management must also develop the flexibility to make all necessary changes and improvements to achieve the best possible business performance. Thus, this concept modernizes the PDCA cycle, shifting the focus from classical compliance with precisely defined standards to improvement and the creation of innovations towards higher levels of performance, which is the path to greater business efficiency and better financial results.

Keywords: process orientation, team organization, process management, total quality, quality management.

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THE IMPORTANCE AND CHARACTERISTICS OF ROUTINE URINE EXAMINATION IN PEDIATRIC AGE DURING THE AUTUMN-WINTER PERIOD

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ABSTRACT

Introduction: Routine complete blood count (CBC) and complete urine analysis are frequently requested in emergency services for evaluating the patient's condition, and for diagnostic and prognostic orientation. *Aim:* Investigation the comparative features of microscopic urine sediment analysis (MUSA) and multiple strip test measurement (MTSM), and their specific characteristics in febrile pediatric patients in the regional hospital's city of Saranda, Albania. *Materials and Methods:* Data from 193 children admitted to Saranda Hospital (Albania) were reviewed, and MUSA features, MTSM findings, and admission diagnoses were observed. Urine examination was requested for 171 and performed on 153 patients. *Results:* The main reason for hospitalization was febrile condition, at 46.1%. Gender distribution: females = 45.83%, males = 54.17%. Age distribution: 0–5 years = 55.73%; over 5 years = 44.27%. The predominant urinary signs in febrile conditions were crystalluria, ketonuria, and leukocyturia, and to a lesser extent proteinuria and erythrocyturia. MUSA versus MTSM: Leukocyturia>10/hpf 18.3% vs 22.8%, p=0.3, CI = -4.5–13.5). Erythrocyturia above normal: 20.3% vs 20.9% (p = 0.9, CI = –8.4 to 9.6). Only, MUSA: Crystalluria= 46.4% of cases. Only MTSM, Ketonuria = 45.71%, Proteinuria = 24.1%. *Conclusions:* Urine examination is a commonly requested test in pediatric patients, with diagnostic and evaluative attributes. MUSA showed no superiority in the detection of leukocyturia>10/hpf ($p > 0.05$), but showed superiority detecting crystals and leucocytes under 10/hpf, while MTSM was superior identifying proteinuria and ketonuria. MUSA and MTSM had equivalent performance regarding erythrocyturia ($p > 0.05$). There is a need to repeat urine examinations in post-febrile time to determine whether proteinuria or ketonuria were transient. Preventive and corrective policies such as vaccination and both personal and collective hygiene should not be neglected.

Keywords: ketonuria, febrile condition, crystalluria, proteinuria, leukocyturia.

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ACCUMULATION AND MIGRATION OF HEAVY METALS IN THE SOIL–PLANTS–BEES–HONEY CHAIN UNDER DIFFERENT ENVIRONMENTAL CONDITIONS IN ALTAI

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ABSTRACT

The paper reports the results of monitoring the migration of some heavy metals (Mn, Fe, Zn, Cd, Pb, Cu) in apiaries in Altai Krai (Soloneshensky, Smolensky, and Altai districts) and Altai Republic (Chemalsky and Shebalinsky districts), Russia, within the soil–plants–bees–honey food chain. Study sites differ in several environmental conditions: elevation, vegetation, microclimatic characteristics, and distance from arterial highways. The data obtained suggest a low degree of contamination of environmental objects (soil, grass, bee products) and prove that the honey is ecologically safe. A correlation is found between the content of heavy metals in natural objects and the content of heavy metals in honey obtained from European bees at apiaries in the considered regions.

Keywords: heavy metals, food chains, apiculture products, monitoring, honey, environment, mid-altitude, low-altitude, chromium, cadmium, copper, lead, manganese, iron.

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TRANSFORMING BREWER'S SPENT GRAIN INTO VALUE-ADDED BIODEGRADABLE PRODUCTS

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ABSTRACT

Brewer's spent grain (BSG) can be used to produce biodegradable plastics and sweeteners through several pathways. This study presents a simulation-driven biorefinery model for converting this kind of waste into two commercially significant biochemicals: polylactic acid (PLA) and Xylitol. Brewer's spent grains are by-product of the brewing industry, and being produced in large quantities but remain significantly underutilized. They content a lot of polysaccharides and proteins, offering so a valuable potential for biotechnological transformation. Firstly, BSG was considered to be treated with dilute acid to hydrolyze hemicellulose into xylose-rich hydrolysate, under of ~120°C, 30 min, 1.7-2 M acid concentration, following by Xylitol fermentation in the presence of microorganisms obtaining a substrate based in Xylose-rich hydrolysate, at the conditions: pH ~5.8–6.8; temperature ~37°C; incubation ~80 h. Then, was previewed a Lactic Acid fermentation in the presence of microorganism and as substrate was Glucose-rich cellulose hydrolysate with the conditions: pH ~5.7; temperature ~37°C; with varying incubation time. BSG's lignocellulosic composition makes it a versatile feedstock: for biodegradable plastics by direct incorporation into composites or via conversion to polymer building blocks; and for sweeteners by enzymatic breakdown of hemicellulose to fermentable sugars like xylose for xylitol production. Simulation results estimate production yields of approximately 0.3 kg of PLA and 0.2 kg of Xylitol per kg of dry BSG, with fermentation efficiencies reaching up to 80% under optimized conditions. A preliminary techno-economic assessment projects an internal rate of return (IRR) exceeding 15% and a payback period of fewer than five years, indicating the process's financial feasibility. The process design contributes to waste valorization, resource efficiency, and green chemistry innovation.

Keywords: Brewer's spent grains, xylitol, polylactic acid, process simulation, circular economy.

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IMPACT OF GEOPOLITICAL ENVIRONMENTAL AND SOCIAL RISKS ON GLOBAL SUPPLY CHAINS

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ABSTRACT

In the contemporary milieu of incessantly shifting global dynamics, the exigency of comprehending the multifaceted repercussions of geopolitical contingencies on transnational supply chains has ascended to paramount significance. Geopolitical perturbations, manifesting through international hostilities, paradigmatic political transformations, the imposition of European economic sanctions, and stochastic natural calamities, exert profound and often deleterious influences on global transportation networks, engendering a panoply of operational impediments and strategic conundrums. The primary objective of this treatise is to elucidate the ramifications of such geopolitical vicissitudes on globalized supply chains, to delineate the cardinal quandaries confronting corporate entities, and to propose cogent methodologies for their mitigation. This exposition encapsulates the outcomes of a methodologically rigorous inquiry, encompassing a synthesis of erudite academic discourse, empirical international compendia, pertinent economic metrics, avant-garde technological trajectories, and region-specific idiosyncrasies. The study substantiates the need to transform supply strategies towards decarbonization, resource efficiency and environmental accountability. Key geopolitical risks of an environmental nature are identified – climate, energy and natural disaster risks. It finds that climate change poses significant risks to supply chains, affecting stability, logistics and the economy, just as energy crises and extreme weather events such as floods, droughts and hurricanes can lead to supply disruptions, price increases and route changes. The findings incontrovertibly underscore the disruptive capacity of geopolitical risks, which catalyze cascades of logistical disarray – manifesting as augmented expenditures, protracted delivery latencies, and in extreme instances, the cessation of industrial operations. The imperative for the adoption of agile, resilient, and preemptive managerial paradigms within the ambit of intercontinental logistics systems is emphasized, facilitating expeditious adaptation to the volatile geopolitical environment. This research focuses on how global supply chains can be effectively managed during times of geopolitical instability. To address this issue, it draws on a combination of approaches from various disciplines, as well as modern technological tools. The findings provide a solid basis for making strategic decisions and planning in the field of international logistics, helping companies prepare for and respond to future geopolitical challenges.

Keywords: geopolitical contingencies, transnational logistics management, economic perturbations, international supply chain resilience, sanctions dynamics, intercontinental transportation networks, geopolitical adaptability, environmental risks, social risks, climate factors, energy crisis.

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Abstract
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ANALYSIS OF THE ECONOMY, PRODUCTION, FINANCE, FOREIGN TRADE AND ENVIRONMENT SECTORS: A CASE STUDY IN UKRAINE

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ABSTRACT

The institutionalization of martial law, as a phenomenological-structural imperative, emerges as a dominant determinant that configuratively transfigures the paradigmatic foundations of economic determinism both within intrastate dimensions and at the intersection of exogenous disruptions. The implicit complexity of this phenomenon is actualised through the interplay of multifarious and, at times, irrational impulses – among which the transmutation of consumer behaviour, the escalation of investment uncertainty, ruptures within trans-logistical linkages, and the erosion of contractual and intergovernmental economic alliances – stand out as structurally delegitimised under the pressure of force majeure contingencies. Accordingly, a hermeneutic apprehension of the functionally critical transformations engendered by militarised intervention in the civil economy acquires epistemological gravity, insofar as it enables not merely the reconstruction of latent processes within strategic sectors of economic activity but also renders possible a reflexive comprehension of the very nature of an economy subjected to the mobilisational logic of conflict. The article examines the key vectors of the serious destructive impact of war on the ecological situation in the context of pollution of air, water and soil environments with the effect of prolongation, destruction of ecosystems, climate change and impact on human health. It is proven that the ecological consequences of war are long-term and require a comprehensive approach to their elimination and subsequent regeneration of territories. Through the prism of critical analysis and by means of a comparative-systemic methodology, the study delineates both the vulnerable zones of the economic organism under the juridical regime of exceptionality and the potential loci of synergistic resurgence which – despite prevailing entropic trajectories – may engender regenerative impetus for business entities and institutional investors alike. The methodological armature encompasses comparative case studies, SWOT diagnostics, expert dialectics, statistical modelling, and quantitative estimation of economic implications. The study scrutinizes transgressions within the ambit of investment magnetism, fluctuations in creditworthiness, capital lending costs, and the broader contours of fiscal resiliency. The disquisition upon exotrade trajectories elucidates the modalities through which militarized realities precipitate distortions in trade turnover, currency flux, inversions in tariff schemes, and mutative shifts in the investment ambience. The expounded findings facilitate the reconstruction of a unified model of economic responsiveness vis-à-vis martial exigencies, demarcate the sectors most vulnerable to exogenous perturbations, and articulate strategic vectors of counter-crisis intervention amid conflict-induced transformations.

Keywords: martial law, investment, markets, export, import, risks, public finance, fiscal deficit, ecological consequences, destructive impact on the environment.

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CITIZENS' SUPERVISION RIGHTS IN ENVIRONMENTAL ANTI-CORRUPTION IN VIETNAM: CURRENT SITUATION AND POLICY RECOMMENDATIONS

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ABSTRACT

This paper explores citizens' supervision rights in anti-corruption efforts within Vietnam's environmental sector, focusing on legal foundations, implementation gaps, and reform directions. Although the 2013 Constitution and related laws affirm the public's right to monitor state agencies, practical enforcement remains limited due to vague procedures, weak institutional capacity, and inadequate whistleblower protections. In the environmental context, barriers such as restricted access to information, low public awareness, and insufficient civic infrastructure hinder effective oversight. To address these challenges, the paper recommends legal reforms to clarify supervisory mechanisms, the establishment of a national reporting platform for environmental violations, enhanced protection for whistleblowers, and greater support for civil society and media engagement. Promoting civic education and participatory governance is also crucial. Realizing citizens' supervision rights in a substantive not symbolic manner is essential to making environmental anti-corruption a shared responsibility, thereby advancing transparency, accountability, and democratic environmental governance in accordance with the rule of law.

Key words: Citizens, Supervision Rights; Environmental Anti-corruption, Vietnam

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GEOGRAPHIC INFORMATION SYSTEMS IN POST-EARTHQUAKE TRANSPORTATION MANAGEMENT: A SYSTEMATIC REVIEW OF INTEGRATION STRATEGIES AND APPLICATIONS

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ABSTRACT

Managing transportation systems in the aftermath of earthquakes poses critical challenges that significantly impact emergency response operations and community recovery. Geographic Information Systems (GIS), which are tools for capturing, analyzing, and visualizing spatial data, have emerged as indispensable technologies for enhancing the efficiency and effectiveness of post-earthquake mobility management. This review paper explores the integration of GIS in addressing transportation challenges following seismic events. It examines the impacts of earthquakes on transportation infrastructure, evaluates the benefits and limitations of GIS applications, and identifies best practices and strategies for improving transportation system resilience. Additionally, the study highlights emerging trends and innovations in GIS technologies that have the potential to transform post-earthquake transportation management. Through a comprehensive analysis of case studies and scholarly literature, this paper aims to provide policymakers, practitioners, and researchers with valuable insights to support informed decision-making and foster the effective use of GIS in post-disaster contexts.

Keywords: transportation, Geographical Information System (GIS), post-earthquake.

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INFLUENCE OF SELECTED PHYSIOLOGICAL FACTORS (SEX, AGE, GESTATIONAL STATUS, AND PARITY) ON HEMATOLOGICAL PARAMETERS AND ERYTHROCYTE ABNORMALITIES IN REMBI SHEEP: A CASE STUDY IN THE SEMI-ARID ENVIRONMENT OF THE TIARET REGION OF ALGERIA

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ABSTRACT

The aim of this study was to evaluate the effect of sex, age, parity, and pregnancy on hemogram and erythrocyte abnormalities of the Rembi sheep raised in the semi-arid environment of the Tiaret region of Algeria. The study was conducted at the experimental farm of Ibn Khaldoun University of Tiaret. A total of 57 apparently healthy sheep (24 males and 33 females) were used in this study, aged four months and older. Blood samples were collected in an EDTA tube for blood count (especially the red blood cell line), and blood smears were stained by MGG. In the current study the mean values of hematological parameters were RBC = 8.06±2.09 x 10^6/mm³, Hb = 9.75±1.04 g/dl, Hct = 27.30±5.56%, MCV = 34.85±5.17 fL, MCHC = 37.61±6.53 g/dl, and MCH = 13.56±2.67 pg. Statistical analysis showed that the effect of parity was significant ($P<0.05$) on Hb and Hct, and there was no significant effect for sex, age, and pregnancy. Among the 57 blood samples analyzed, 35 (61.4%) showed abnormal red blood cells, while the remaining 22 (38.6%) showed normal red blood cells, with a predominance of shape abnormalities detected in 30 out of the total 35, constituting 85.71% of the abnormalities detected, alone or in combination with other abnormalities. followed by size abnormalities (14.28%), inclusion abnormalities (8.57%), and color abnormalities (5.71%). Echinocytes and poikilocytes are the most frequent forms detected in this population studied, whether in males or females, pregnant or non-pregnant. On the other hand, anomalies of size, coloration, and intra-erythrocyte inclusion remain less frequent.

Key words: semi-arid environment**,** Hemogram, erythrocytic abnormalities, Rembi sheep, Algeria.

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GEOGRAPHIC INFORMATION SYSTEM (GIS)-BASED SPATIOTEMPORAL RAINFALL ANALYSIS IN BELEDWEYN, SOMALIA

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ABSTRACT

Geographic Information Systems (GIS), Spatial distribution, precipitation, Beled Weyn, Somalia This study aims to conduct a situational analysis in water management by utilizing Geographic Information Systems (GIS) to analyze rainfall data. GIS technology is a crucial information system that enables the collection, storage, updating, and visualization of spatially-referenced data through maps, thereby saving time and reducing costs in solution-seeking processes. The study area was selected as Beledweyne city in Somalia, located in the African continent, which has been severely affected by drought. Water management is a critical strategy in combating drought conditions. Using ArcGIS software, this study analyzes the long-term spatial and temporal distribution of rainfall in Beledweyne, emphasizing the significance of regional rainfall patterns across the city's four main districts: Hawa Tako, Bunda Weyn, Koshin, and Howl Wadag. The spatial and temporal distribution was examined using 30 years (1990–2020) of precipitation data obtained from the Climate Research Unit (CRU), one of the world's leading institutions in the field of natural and anthropogenic climate change studies. Rainfall patterns were interpreted every five-year period using the Inverse Distance Weighting (IDW) method. During this period, Howl Wadag district recorded a maximum rainfall of up to 542 mm between 2010 and 2015, whereas Hawa Tako district experienced a minimum rainfall of 143 mm during the 2005–2010 period. These findings are crucial for understanding local climate trends in the city. The visualized data through GIS is particularly important for future planning, especially in areas with high flood risk along the Shabelle River. To mitigate the impacts of these rainfall patterns on local communities, the establishment of rain gauge stations and the development of early warning systems are recommended.

Keywords: Geographic Information Systems (GIS), Spatial distribution, precipitation, Beled Weyn, Somalia

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SUSTAINABLE MARKETING AND ENVIRONMENTAL TOURISM IN COMMUNITY QUALITY OF LIFE OF IONIAN COAST OF ALBANIA: AN ECOSYSTEM PERSPECTIVE

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ABSTRACT

This paper presents a comprehensive and critical examination of the environmental impacts of tourism, emphasizing both its positive contributions and its potential adverse effects. As a dynamic and rapidly expanding sector, tourism interacts closely with natural ecosystems and affects environmental quality through economic, social, and infrastructural activities. The study focuses specifically on the environmental dimension of tourism impacts, recognizing it as one of the most urgent challenges within the framework of sustainable development. In particular, the paper investigates residents' perceptions of the environmental effects of tourism development on quality of life along the Ionian coast of Albania. The study included a sample population of 200 of residents living in the Ionian coast of Albania. A combination of descriptive and inferential statistical methods—including used to explore how demographic characteristics shape perceptions and how these perceptions influence overall life satisfaction. This paper undertakes a comprehensive and critical analysis of the environmental impacts of tourism, addressing both its positive contributions and its potential detrimental effects. It aims to address these gaps by examining the dual nature of tourism's environmental impacts within a context-sensitive and sustainability-oriented analytical framework.

Keywords: Tourism, community, environmental impact, marketing.

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ETHICAL DIMENSION OF RADICAL ENVIRONMENTALISM: A STUDY OF BIOCENTRIC ACTIVISM

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ABSTRACT

Radical environmentalism, grounded in biocentric ethics, advocates for a paradigm shift away from anthropocentrism, often promoting unconventional strategies to address ecological crises. This study examines the ideological underpinnings of such movements, with particular attention to deep ecology, pro-animalistic thought, Neo-Luddism, and Neo-Malthusianism. Using a mixed-methods approach—including historical analysis, comparative assessment, and an expert survey (N=35)— the prevalence and influence of these ideologies were evaluated. Results indicate that deep ecology (ranked highest, weight = 0.39) and pro-animalistic perspectives (weight = 0.35) are the most prominent, frequently inspiring direct action in defense of ecosystems and non-human species. The discussion explores the ethical tensions inherent in these ideologies, particularly their departure from human-centered moral frameworks. While some groups employ civil disobedience, others adopt more confrontational methods, raising questions about the boundaries of ecological advocacy. This paper contributes to environmental ethics by analyzing how biocentric principles shape activism and influence discourse on humanity's role in nature.

Keywords: environmental extremism, deep ecology, pro-animalistic ideologies, neo-Malthusianism, neo-Luddism.

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USE OF MEDIA AND GEOINFORMATION TECHNOLOGIES AND ARTIFICIAL INTELLIGENCE SYSTEMS IN THE EDUCATIONAL PROCESS FOR THE PRESERVATION OF NATURAL ECOSYSTEMS AND BIODIVERSITY

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ABSTRACT

Major changes are currently taking place across various fields of human activity and in the development of fundamental and applied sciences. A significant share of these changes is driven by modern media and geoinformation technologies, which rely on the large-scale development and implementation of geographic information systems (GIS). These systems offer substantial advantages for progress in the economy, politics, ecology, environmental management, media, communications, education, and culture. The study aims to demonstrate the possibilities and specific features of utilizing media and geoinformation technologies, as well as artificial intelligence (AI) systems, in the implementation of the educational process in environmental education at the university level. Based on the results of an expert survey, the authors have identified the primary educational skills acquired through the use of multimedia and GIS technologies in environmental education. The study presents the opportunities offered by multimedia learning for students, enabling the use of multimedia tools, web-GIS, and mobile GIS in environmental education. Their use allows one to study the geographic environment, understand the interdependence of its components, and develop spatial thinking skills, as well as acquire basic skills related to the integration of these technologies with AI systems.

Keywords: GIS technologies, web-GIS, multimedia technologies, geoportal, university, sustainable development.

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POLYMORPHISM OF THE K-CASEIN (CSN3) GENE IN ALBANIAN SHEEP BREEDS

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ABSTRACT

The aim of this study was to determine the allele and genotype frequencies of the κ-casein (CSN3) gene in four sheep breeds raised in Albania: Shkodrane, Lara e Polisit, Awassi, and Île-de-France. A total of 112 individuals from these breeds were genotyped for polymorphism of exon 4 of the k-casein gene. A 640 bp fragment was amplified and the profile was analysed by SSCP. Two alleles (A and B) were identified, with frequencies of 0.89 and 0.11, respectively, at the whole population level. Genotypic and allelic frequencies, gene diversity indices, and Hardy–Weinberg equilibrium analyses were performed using GenAlEx and FSTAT software. Lara e Polisit showed the highest genetic diversity, while the lowest diversity was observed in Shkodrane and Awassi. These results might be useful for the application in breeding programs aimed at improving milk traits and preserving local genetic resources. This study represents an important step toward integrating genomic tools into sheep breeding strategies in Albania.

Keywords: genetic diversity, polymorphism, Hardy–Weinberg equilibrium, allelic frequencies.

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TOWARD SUSTAINABLE AGRICULTURE: ADOPTION AND CHALLENGES OF PRECISION AGRICULTURE IN ALBANIA

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ABSTRACT

Precision agriculture (PA) has emerged as a transformative paradigm for enhancing the sustainability and competitiveness of agricultural systems, leveraging technologies such as global positioning systems (GPS), remote sensing, sensor networks, and advanced data analytics. While its uptake is substantial in advanced economies, diffusion across the Western Balkans, and Albania in particular, remains limited. This study examines the extent of awareness and adoption of PA among Albanian farmers, identifies the principal drivers and barriers, and situates these findings within the broader regional context. A mixed-methods research design was employed, integrating survey data from 200 farmers with heterogeneous farm sizes and production systems, alongside in-depth qualitative case studies. Results indicate that although 45% of respondents reported awareness of PA, only 10% had adopted such technologies, with adoption concentrated among larger-scale, more commercially oriented, and better-educated farmers. The most frequently implemented technologies included GPS-guided machinery, soil sensors, and unmanned aerial vehicles (drones). Regression analysis identified farm size, educational attainment, and participation in agricultural extension services as significant predictors of adoption. In contrast, high capital costs, insufficient technical capacity, and inadequate digital infrastructure were the most prominent barriers. The findings underscore the necessity of targeted policy interventions—particularly those that address financial constraints, capacity building, and infrastructure development, to accelerate the diffusion of precision agriculture in transitional economies such as Albania.

Keywords: precision agriculture, technology adoption, Albania, sustainable farming, Western Balkans JEL Classification: Q16, O33, Q18, R11.

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GREEN TREATMENT OF CHEMICAL POLLUTION IN WATER: A REVIEW

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ABSTRACT

The review paper discusses how to clean up water contaminated by chemicals, including organic materials, in a green treatment. Using sustainable green technological paths that do not produce pollutants after treatment, it explained how scientists have been producing more recently using modern techniques that aim to achieve environmentally friendly treatment. Depending on the time function and the kinetic reactive capacity over the catalyst's surface, which has effective acidic sites and pores that compel the pollutant molecules to adsorb on them and undergo a catalytic oxidative activity over their solid surfaces, this is accomplished by employing reusable solid catalysts in straightforward reactions without using energy. The catalytic oxidative ability of zeolite, cellulose, biochar, carbon nanotube, chitosan, and other porous catalyst surfaces allows for the complete removal of organic pollutants by either converting them into carbon dioxide and water or breaking them down into tiny pieces that are adsorbed on the catalyst's surface and then cleaned and reactivated by heat and solvent. This manuscript examined recent studies and the literature, focusing on environmentally friendly methods for eliminating organic pollutants from water, such as chemical treatment with reusable solid catalysts and phytoremediation.

Keywords: Green Treatment, Chemical Pollution, Water Environment, Solid Catalysts, Biological and Chemical.

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GREEN AMMONIA AND REVERSE AUCTIONS: A POLICY INNOVATION TOWARD INDONESIA'S NET ZERO GOAL

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ABSTRACT

This study analyses potential regulatory frameworks for procuring green ammonia via a reverse-auction mechanism to facilitate Indonesia's transition to clean energy and achieve Net Zero Emissions. The discussion starts by emphasising the significant carbon intensity associated with coal-fired power plants, which averages 1.05 kg CO_2/kWh. It then examines the national legal framework, including the Paris Agreement Ratification Law and the Renewable Energy Bill. It also considers the financing mechanisms detailed in these laws and the Ministry of Finance Regulation No. 22 of 2023. The reverse-auction approach is suggested due to its ability to reduce production and distribution costs through price competition, transparency, and efficiency in time management. A comprehensive review of global literature indicates that successful implementations in India, Mexico, the UAE, and Brazil have led to significant reductions in electricity prices through renewable-energy auction schemes. The primary challenges recognised are the substantial expenses associated with electrolysis technologies, a lack of public awareness, and the inadequacy of CCS/CCUS infrastructure development. The study, framed by the Theory of Planned Behaviour, highlights the significance of attitude, social norms, and perceived control in adopting green ammonia. Proposed actions consist of: (1) revising the Law and the Renewable Energy Bill to clearly define and categorise green ammonia; (2) creating a coordination body that involves multiple stakeholders; (3) incorporating principles of transparency, equity, and national interest; and (4) enacting a Government Regulation to establish technical procedures, sustainability standards, and requirements for domestic products. Implementing these measures is anticipated to enhance the adoption of green ammonia within the energy and agriculture sectors, strengthen energy security, and reduce Indonesia's carbon footprint.

Keywords: green ammonia, policy, public procurement, reverse auction, renewable energy.

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SOME ASPECTS OF QUALITY CONTROL OF RADIOPHARMACEUTICALS AND COMPARISON OF CHROMATOGRAPHIC SYSTEMS FOR RADIOCHEMICAL PURITY DETERMINATION OF THE ^{99M}TC-PYROPHOSPHATE

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ABSTRACT

Since, in nuclear medicine, radiopharmaceuticals are intended for administration to humans as intravenous injections, they must undergo strict quality control procedures to ensure their purity, potency, product identity, biologic safety, and efficacy. Quality control of radiopharmaceuticals is very important and involves two different aspects: control of pharmaceutical and radioactive parameters. This work aimed to describe some aspects of quality control of radiopharmaceuticals and to compare some chromatographic systems available to determine radiochemical purity of ^{99m}Tc-Pyrophosphate (PYP) to verify their true usefulness and to find the best way to quantify the radiochemical purity of this radiopharmaceutical. There are some recommended radiochromatographic systems (stationary phase/mobile phase) in the literature for the radiochemical quality control of ^{99m}Tc-Pyrophosphate. We analyzed and evaluated some of them: 1. Instant Thin Layer Chromatography (ITLC) Method: ITLC-Silica Gel (SG)/MEK (Butanone-2), ITLC-SG/Na-Acetate 13.6%, and 2. Paper Chromatography (PC) Method: Whatman No.32 ET Chr and Whatman 2598C as the stationary phase, and Ethanol absolute, Ethyl Acetate: MEK 3:2, MEK, Na-Acetate 13.6%, NaCl, Acetone, Acetonitrile 50%, as mobile phase for two of them. All above systems were compared considering time required, analytical artifacts, true separation, ease of handling, shape of chromatographic peaks, etc. According to our results taken from all experiments with the different systems, we conclude that not all systems are equivalent, some being more suitable than others for determination of the radiochemical purity of ^{99m}Tc-Pyrophosphate. From the results, Instant Thin Layer Chromatography in Silica Gel (as stationary phase) using MEK as solvent (mobile phase) demonstrated the best characteristics for these quality control. We recommend this system to be used routinely in the nuclear medicine department to check the radiochemical purity of ^{99m}Tc-Pyrophosphate. Stability tests and biodistribution studies show that ^{99m}Tc-Pyrophosphate preparations were stable up to 6 hours after labeling and fulfill US Pharmacopeia requirements for biodistribution in dogs.

Keywords: radiopharmaceutical, quality control, radiochemical purity, chromatographic system.

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GAMMA EMITTER ASSESSMENT OF LOCAL AND IMPORTED COW AND CHICKEN CANNED MEAT IN IRAQI MARKETS

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ABSTRACT

The specific activity for gamma emitters, such as ^{238}U, ^{232}Th, and ^{40}K, was determined in local and imported cow and chicken canned meat samples that are available in Iraqi Markets. Gamma emitters were analyzed using the gamma spectrometry method with a high efficiency NaI (TI) detector that it is size "3x3". The results show that the average values of ^{238}U, ^{232}Th, and ^{40}K in cow meat were 4.20±1.11 Bq/kg, 5.55±1.06 Bq/kg, and 280.19±18.16 Bq/kg, respectively, while in chicken meat were 3.146±0.86 Bq/kg, 0.84±0.13 Bq/kg, and 57.55±9.18, respectively. The study demonstrated that the specific activities of the gamma emitters in all cow samples were higher than in chicken meat. Also, all results of canned meat were within the internationally permissible limits as determined by UNSCEAR in 2008. In conclusion, this study can prove that the consumption of canned meat of cow and chicken available in Iraqi markets is safe in terms of natural radioactivity.

Keywords: Gamma emitters, cow meat, chicken meat, canned food, NaI(Tl), Iraq.

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MUSCULOSKELETAL INJURIES RELATED TO PROFESSIONAL HEALTH WORKER: A CROSS-SECTION STUDY IN SHKODRA CITY

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ABSTRACT

Introduction: In the global context, work-related musculoskeletal disorders (WMSD) have emerged as a significant and major intricate challenge. The main aim of this study is to identify the prevalence of WMSD and highlight the musculoskeletal health problems that have occurred as a result of work activities among the nursing population of the Shkodra regional hospital. Methods: A cross-section research methodology is used in this study. Survey questions were initially developed based on a review of previous studies or research. SPSS 26.0. was used for statistical analysis where a 2-tailed p, was used to test the related variables, where a value less than 0.05 was considered statistically significant. Results: This study included 132 participants, with a mean age of 37.02±11.20 StD years, with an age interval [min 22 years-max 61 years]. The prevalence of WMSD was 84.8%, with approximately 70.5% reporting that the problems they experienced may have been caused or aggravated by their work. Pain is the main characteristic among other musculoskeletal symptoms in 71.2% of cases, and 29.5% of them have been absent from work for a certain period of several days due to these symptoms. The region most affected by musculoskeletal disorders is the neck in 73.5% of cases, followed by the lumbar region in 64.4%, in third place is the shoulder with 53% of cases, and then the other regions are listed. Conclusion: The results obtained from the present study indicate a high prevalence of WMSD among nurses. The most affected anatomical regions are the neck, lumbar and dorsal regions. Consequently, it is recommended that national policies intervene promptly with the primary objective of reducing the prevalence of these disorders among nursing staff.

Keywords: nurses, work related musculoskeletal disorders, risk factors, prevalence.

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AGROECOLOGICAL JUSTIFICATION OF ELEMENTS OF BIOLOGIZED SOYBEAN GROWING TECHNOLOGIES

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ABSTRACT

The article highlights the results of research on the development, improvement and agroecological substantiation of elements of biologized technologies for growing soybeans in the conditions of the Forest-Steppe zone of Ukraine. The regularities of the formation of biometric indicators and growth processes were revealed when combining low doses of mineral fertilizers with the use of soil and endophytic groups of microorganisms during the treatment of seed material and foliar top dressing of crops in the main phases of plant growth and development. The research work was carried out in the conditions of the scientific research farm «Agronomichne» of Vinnytsia National Agrarian University, located in the Right-Bank Forest-Steppe zone of Ukraine on gray forest soils. It was established that the most favorable conditions for growth and development, and as a consequence, the greatest survival of soybean plants, were in the variants of the experiment with a combination of seed inoculation with the drug Bioinokulyant BTU (2 l/t) and foliar top dressing with organo-mineral fertilizer Helprost soy (2.5 l/ha). Under these growing conditions, the percentage of soybean plant survival was 93.2±2.8%, while in the absolute control experiment this figure was only 87.1±2.6%. When pre-sowing inoculation of seeds with the drug Rizoline (2 l/t) with the protector Rizosave (2 l/t), the height of soybean plants was formed at the level of 67.7±6.9-74.3±6.6 cm, which is 2.7-5.0 cm (4.1-7.2%) more than in the control. A positive effect of organized factors on plant height indicators was noted. Thus, a greater plant height of 68.8±6.3-76.1±6.8 cm was formed in the variant where the inoculant Anderiz (1.5 l/ha) was used. Growth when compared to variants without inoculation was 3.8-6.8 cm (5.8-9.8%). Based on the conducted research, it was established that in the conditions of the Right-Bank Forest-Steppe on gray forest soils, the best conditions for the formation of the maximum possible indicator of the total 24,811 thousand kg·day/ha and the active symbiotic potential of 20,730 thousand kg·day/ha of soybean plants, for the entire period of symbiosis, were formed under the conditions of a combination of pre-sowing treatment of seeds with the preparation Bioinoculant BTU (2 l/t) and foliar feeding with the organo-mineral fertilizer Helprost soy (2.5 l/ha).

Keywords: soybean, environmental justification, seed inoculation, plant preservation, growth processes, nitrogen fixation.

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PRELIMINARY DATA REGARDING THE REEVALUATION OF CILIATES FAUNA (PROTOZOA, CILIOPHORA) FROM ROMANIAN MIDLITTORAL ZONE OF "MODERN" BEACH CONSTANTA

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ABSTRACT

The "Modern" beach of constanta represents an interesting ecosystem not only for its location not far from the Comercial and leisure Port, inside of Constanta City, but also for the granulometryc composition of coastal sand. The importance of reevaluation of ciliates fauna of the midilittoral area originates from the evolution of marine costal ecosystem as a result of anthropic impact, and also from the time that has passed since the last research dedicated to this group of over a decade and a half. Twenty samples containing sand and seawater were collected from the open midlittoral of the beach, and from the sheltered area of the pier; these samples included either soft sand or a mixture of soft fractions and environmental sand. The samples water salinity varied between 10,5 and 14 g/l as a consequence of breakwater discharge in the area of interest, and the pH taken values were between 6,5 -7. The most species of ciliates are typically marine but there is also a small fraction of freshwater species as a result of the freshwater discharges into the sea. The accumulation of green and brown algae species in the samples prelevation area determines the presence of ciliates with phytophagous and bacterivorous trophic regime (species of *Euplotes*, *Aspidisca* genres), their abundance bringing other predator protozoa *(Lacrymaria, Loxophyllum. Holohprya* etc.). The total number of identified genera was 14.

Key words: ciliates, Black Sea ecosystem, midlittoral, reevaluation.