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AGROECOLOGICAL SOIL STATUS IN AGROECOSYSTEMS WITH MONOCULTURE

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ABSTRACT

The article presents original results of research. The dynamics of the balance and NPK use efficiency of the typical Ukrainian farm for monoculture cultivation during 2016–2018 has been calculated. Laboratory analysis of soil (pH value, humus content, N, P_2O_5 and K_2O) and grain (N and P_2O_5 content) was conducted in 2019. The negative dynamics of basic nutrient balance in the soil was revealed for 2016–2018 (nitrogen deficiency ranged from –30,6 to –130,9 kg/ha/year, phosphorus – from –25,8 to –62,4 kg/ha/year, potassium – from –34,3 to –244,5 kg/ha/year) and intensive pressures on the soil (NUE = 77,0–260,3%, PUE = 171,3–1902,3% and KUE = 115,8–1429,8%). Soil pH was found on average 5,6 (category: close to neutral), the nitrogen content averaged 99 mg/kg (very low level), P_2O_5 content – 208 mg/kg (high level) and K_2O – 119 mg/kg (medium level) on the farmland areas. The ratio between nitrogen, phosphorus and potassium content in the soil of the studied land areas on average reaches 1:0,9:1,2 while the scientifically sound norm is 1:0,9:0,8. The average humus content is 1,93% (low level). The calculated indicators of nitrogen and NUE balance only in 2017 met the recommended standards of the UN Economic Commission for Europe. The PUE and KUE values in 2016 exceeded the average rate of phosphorus and potassium removal from the soil – 22 and 12 times, respectively. Changes of acidity over the last three years indicate the acidification of the soil environment, which is quite natural: only nitrogenous mineral fertilizers are applied to the soil, which is physiologically acidic, soil liming is not carried out, the green manure crops are not sown, organic fertilizers are not applied, and in crop rotation was a monoculture. The widespread practice of plowing crop residues into the soil without applying phosphorus and potassium fertilizers for three years does not meet the crop requirements for phosphorus and potassium and creates high one-way pressure on the soil. Consequently, relatively high sunflower and maize yields are generated from the existing high and medium content of these elements in the soil. The tendency of decreasing humus content in soil has been noticed.

Keywords: agroecosystem, soil, monoculture, fertility, sunflower, maize, NPK, nitrogen emission.

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THE PROTECTION STATUS OF THREATENED SPECIES AND THEIR SPREADING AREAS IN THE CENTRAL REGION OF THE REPUBLIC OF MOLDOVA

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ABSTRACT

The paper presents a synthesis of the research results carried out over several years in the natural protected areas from the central region of the Republic of Moldova. The object of this research is 41 protected areas located in the forest fund. The focus is on the endangered species of plants and animals as well as the protected areas in which they were identified. The assessment of the protected areas was carried out during the main phenological phases of the vegetal and animal world. The register of valuable species was created, and their status of protection was recorded. There were identified 25 endangered species of plants and 16 of animals in the investigated areas. New areas of distribution were found for some species besides those mentioned in the Red Book of Moldova. The level of protection of the species demonstrates the importance of these areas for the biodiversity conservation. In order to ensure the conservation of these species in the investigated protected areas, it is necessary to strengthen the protection measures in such a way that these species are protected in their natural habitats. For an efficient management of the species and their ecosystems, we recommend developing a list with threatened species of plants and animals for each protected area that should include scientific data about abundance, vulnerability and their coordinates.

Key words: threatened species, status of protection, natural protected areas

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TRANSFORMATION OF GEOSYSTEMS VEGETATION OF SOUTHERN PRE - BAIKAL (*The Baikal Region*)

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ABSTRACT

The article presents the peculiarities of the spatial-temporal organization in the geosystems under different physical-geographic conditions of South-Western and Southern Pre-Baikal. The trends in formation of the plant communities of different landscapes types on the background of changes in the vector of anthropogenic impact are determined for the last 35 years. Basic parameters of the phytocoenoses structure characterizing the facial organization of landscapes are revealed for modern existing environmental conditions in the studied areas.

Key words: phytocoenoses, vegetation, geosystems, spatial-temporal organization, Pre-Baikal

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LEGAL AND POLITICAL CHANGES IN INDIA TOWARDS SUSTAINABLE MINING

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ABSTRACT

The mining industry of India contributes substantially to the economic development of the country. Despite the economic boost and the employment opportunities it creates, it has faced the flak of environmentalists owing to its environmental hazards. It is a potential threat to the ecosystem and biodiversity and there is an exigency to attain a rational balance between the mining activity and environment with an ultimate aim to achieve sustainable development. The present paper discusses the different techniques employed for mining and their individual environmental challenges, the statutes governing mining in India and the significance of rehabilitation and reclamation measures to combat the environmental threats. The environmental risks posed by the mining activity are catastrophic and there is an exigency to attain a rational balance between the mining activity and environment with an ultimate aim to achieve sustainable development.

Keywords: Mining, Environment, Ecosystem, Reclamation, Rehabilitation, Biodiversity

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BUILDING CAPACITY IN ALBANIA THROUGH COORDINATED RESEARCH ACTIVITIES IN NUCLEAR SECURITY

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ABSTRACT

The Institute of Applied Nuclear Physics (IANP) is established in 1970 and is the main user of the radioactive sources in Albania. IANP is a focal point and the main user and provider of nuclear and nuclear related techniques in the country and conducts research, applications, education and expert training in this field. In July 2016 IANP joined the Coordinated Research Project (CRP) J02005 titled "Improved Assessment of Initial Alarms from Radiation Detection Instruments" and in August 2018 joined the CRP J02012 titled "Advancing Radiation Detection Equipment for Detecting Nuclear and Other Radioactive Material out of Regulatory Control" in collaboration with General Custom Directorate (GCD). Participation in the CRP J02005 and the knowledge gained in understanding more the radiation detection system operations, has been a great support in improvements on how systems can be more sustainable. In the CRP J02012, the work has been focused in research experiments with different portable radiation detection instruments that are disposable at IANP. In collaboration with Department of Physics in the Faculty of Natural Sciences are conducted research experiments involving different age, weight and sex of people (students and Institute of Applied Nuclear Physics personnel). The research experiments are performed in different weather conditions (winter/ summer) classroom and field conditions for determining optimal equipment specifications. In August 2019 IANP joined the CRP J02014 titled "Advancing Maintenance, Repair and Calibration of Radiation Detection Equipment". Participation in the above CRPs provided opportunity to expand professional experience and to strengthen the cooperation between IANP and the GCD.

Keywords: research experiments, commodity, coordinate research project, radiation detection

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PRELIMINARY RESULTS RELATED TO HUMAN FACTORS ENGINEERING SPECIFICATIONS FOR ADVANCING RADIATION DETECTION EQUIPMENT'S

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ABSTRACT

The current state of portable and handheld radiation detection instruments and systems used to detect a criminal or an unauthorized act with nuclear security implications involving nuclear or other radioactive material that is out of regulatory control is often inadequate to meet the nuclear security needs of the users within States. This work thoroughly supported by IAEA, chiefly from Division of Nuclear Security, Department of Nuclear Safety and Security. Incorporating human factors early in design is a cost-effective approach to minimizing human error during operational use. Mitigating human error for an established system is more difficult than factoring in human capabilities and limitations in initial design. In some cases, performance (detection sensitivity, battery life, etc.) of the instrument has been sacrificed to reduce weight. Equipment design should be assessed from a human interface perspective to help design engineers to create a better product. This paper provides some of the preliminary results of the research experiments studying the form and weight factors of different radiation detection equipment's. So far are performed about 1000 experiments, mainly students (above 18 years old) and also costumes staff are involved. Experiments were also conducted simulating different weather (winter/summer) and field conditions for determining optimal equipment specifications. All the above described research activities have been done under the Coordinated Research Project (CRP) J02012 "Advancing Radiation Detection Equipment for Detecting Nuclear and Other Radioactive Material out of Regulatory Control" organized by International Atomic Energy Agency (IAEA). Albania has joined this CRP in 2017 and since then the Institute of Applied Nuclear Physics has been collecting data from a large number of research experiments examining different form factors and weights of radiation detection equipment under various use conditions.

Keywords: handheld radiation detection, weight factors, form factors, Equipment design

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SAFETY AND SECURITY INTERFACE OF RPMS USE TO BROADEN RADIOLOGICAL PROTECTION IN ALBANIA

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ABSTRACT

The basic law for radiation protection in the Republic of Albania is Law no. 8025, dated 11.01.1995 "On protection against ionizing radiation" amended No. 9973, July 28-th 2008, [1] which establishes basic safety standards to protect health of workers and the general public environment against the dangers arising from the ionizing radiation activities. Regulation on Physical Protection of Radioactive Materials in Albania has the objective to establish the basic requirements for physical protection of radioactive sources, and apply to all activities relating to the possession, use, storage and transportation of radioactive sources. Physical protection of radioactive sources aims to protect persons, property, society, and the environment from malicious acts, such as theft or unauthorized removal and sabotage involving radioactive sources. As a result of concern over nuclear and radioactive materials out of regulatory control, Albania has installed a number of Radiation Portal Monitors at various border control points. The main issue in relation to illicit trafficking and smuggling in nuclear materials is to detect any possible illegal transits through Albanian territory and borders and to respond to them properly. The knowledge gained on commodities containing NORM, compliance with transportation and safety requirements, and assessment of alarms will be discussed. The importance of documentation, cooperation between safety and security agencies/organizations, and tools to assess radiation alarms will be also covered.

Keywords: ionizing radiation, radioactive sources, radioactive materials, Radiation Portal Monitors

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A CONTRIBUTION TO RELICT AND ENDEMIC FLORA, LIFE FORM AND CHOROLOGY OF PLANTS IN BREDHIK RESERVE IN KOSOVO

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ABSTRACT

Bredhik Reserve is located in Sharr Mountain, in the South of Kosovo, near the state border with North Macedonia. It was established as strict natural area in 2016 and covers 126.16 ha. The study of the endemic and relicts species of Bredhik Reserve is performed for the first time. In group of biodiversity important plant species, determined by us, there are 64 taxa belonging to 46 genera and 31 families. The most species-rich families are Caryophyllaceae, Caryophyllaceae and Salicaceae. Tertiary relicts are 43 taxa, out of them 5 are endemic-relict, while glacial relicts are 7 taxa. There are 15 endemic and subendemic taxa. The results of the analysis of the flora show that the most abundant are Phanerophytes (43.75%), also Hemicryptophytes constitute a significant proportion of the flora (37.50%). The best represented chorological types are Balkan, Boreal and Euro-Asiatic elements. The biological spectrum in respect to biological types, shows strong prevalence of herbaceous perennials (53.12%), followed by tree species (23.44%). The presence of a high number of endemic and relict taxa has a great significance from the aspect of biodiversity and conservation of the area and the data brought could be utilized for further research.

Key words: Kosovo flora, floristic diversity, relicts, endemics, chorological type, life form

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ASSESSMENT OF PHYSICOCHEMICAL WATER QUALITY OF BOUGARA DAM-TIARET, ALGERIA

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ABSTRACT

The present study aimed at assessing water physicochemical quality of Bougara Dam (Algeria). Water samples were collected in 2019 from different locations within the dam's reservoir for a period of three months (from Mars to May). Several physicochemical parameters (pH, temperature, electrical conductivity (EC), dissolved oxygen (DO), dry residuals, oxidizable matter (OM), nitrate (NO_3^-), ammoniacal nitrogen (NH_4^+), chloride (Cl^-), phosphates (PO_4^{3-}), biological oxygen demand (BOD5) and chemical oxygen demand (COD)) were measured. The result of this research showed that mean values of studied parameters, except phosphates and ammoniacal nitrogen concentrations were within the permissible limit of standards established by the National Agency for Hydraulic Resources (ANRH) and Algerian standards for surface water. These findings constitute a basis for monitoring the physicochemical quality of water in the study area.

Keywords: Physico-chemical parameters, Bougara Dam, Tiaret, Water quality.

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INVESTIGATION OF FOREST ECOSYSTEM SERVICES AND PAYMENTS FOR ECOSYSTEM SERVICES IN TURKISH FORESTRY SECTOR PLANS

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ABSTRACT

Forest ecosystems provide a variety of environmental, economic, social and cultural goods and services crucial to sustaining human societies such as food, raw material, carbon sequestration, water purification, soil formation and habitat for millions of species. Due to excessive demand stemming from economic growth, demographic changes and individual choices, ecosystem services are under pressure and they are degraded. That is why it becomes more crucial to prevent these ecosystems and ecosystem services. In this study it is aimed to review the relationship between forest resources and ecosystem services for the Turkish forestry sector. Within this scope, after a brief examination of forest ecosystem services and the current situation of payment for ecosystem services (PES) mechanisms in Turkey, the forestry sector plans and documents are analyzed and how ecosystem services and PES mechanisms are handled in these plans and programs are evaluated. It is determined that there is no detailed purposes or actions on forest ecosystem services, their importance and PES in forestry sector plans in Turkey. Although emerging mechanisms such as PES offer good alternatives for financing forestry sector projects, Turkish forestry sector does not benefit from these resources yet already.

Keywords: forest ecosystems, forestry sector plans, ecosystem protection, payments for ecosystem services.

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PHYSIOTHERAPY IN COMBINATION WITH MULTIMODAL INTERVENTIONS REDUCE IN ADULT PATIENTS CHRONIC NECK PAIN-REVIEW

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ABSTRACT

Chronic neck pain is one of the most frequent musculoskeletal disorders in adults. It not only disrupts a person's quality of life but there also very high economic costs. The effects of physiotherapy in this problem are still unclear, and more the combination of physiotherapy with other treatment methods. The purpose was to review the literature in relation to the effectiveness of the combination of physiotherapy with other treatments as an important alternative in the treatment of chronic neck pain in adult patients. The research included the electronic database of Ovid PubMed, NLM Tools, and CINAHL. Seven studies on the effects of physiotherapy in combination with other treatments in chronic neck pain were included in the review. Adults patients, only randomized clinical trials, and the studies published in the past years were the inclusion criteria. The variable that was taken into account after primary treatment was the reduction of chronic neck pain. The study results showed that clinical studies were limited, even if the multimodal intervention may be an effective intervention for chronic neck pain patients. The review showed that physiotherapy has satisfactory effects in the treatment of chronic neck pain in combination with multimodal interventions but there is not enough evidence, due to the small number of trials included in the review.

Keywords: Neck pain, physiotherapy, multimodal, intervention, clinical trials.

Vol. 11 (1): 89-96 (2021)

COMPARISON OF WINTER BARLEY VARIETIES (*HORDEUM VULGARE*) FOR BEER IN CLIMATIC ZONES IN KOSOVO

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ABSTRACT

The purpose of this study is the analysis of breeding/cultivation and production of autumn barley for beer (*Hordeum vulgare*) in the climatic conditions of the Republic of Kosovo. In the cultivation analysis and production have been included a total of five barley cultivars: Bingo, Zlatko, Vannesa, Esterel and Rex as comparative (standard). Analysis of breeding and production are conducted in two regions: Dukagjini Plain, and Kosovo Plain. The experiments have been settled by the method of randomized blocks in their repetitions. Area of each experimental plot was 10 m^2. In analyzing the cultivation and production, have been analyzed yield (kg/ha), weight (1000 seeds in grams) hectoliters weight (kg), protein content (%) humidity (%), and starch. Results obtained showed that there were significant statistical differences at different levels for all traits investigated cultivars involved in plots and compared with the standard (Rex) and also between regions.

Keywords: barley varieties, seed weight, hectoliters weight, yield.

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A RETROSPECTIVE STUDY (2017-2019) ON THE SEROPREVALENCE OF BRUCELLOSIS IN LOCAL AND IMPORTED CATTLE IN DIFFERENT ALGERIAN REGIONS

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ABSTRACT

Bovine brucellosis recognized by the OIE as a major endemic zoonoses, caused by the bacterium *Brucella abortus*. The aim of this study was to determine the seroprevalence to *Brucella abortus* in local and imported cattle breeds Algeria between 2017 to 2019.During the three years a total of 63284 local and 63180 imported cattle in different Algerian regions were sampled. The samples were analyzed using serological tests (RBPT and ELISA) of the local cattle sera analysed, 447 (Prevalence 1.89%),321(prevalence 11.13%) and 213 (1.51%) were found to be positive by RBPT and ELISA, respectively. Of the imported cattle sera analysed screened were a cas RBPT positive. The study reports the first evidence of bovine brucellosis over a vast geographical area of western Algeria Between (2017-2019) and therefore, an indication of a real animal and humans health problem. This warrants the need of integrated intervention to New strategies to fight this disease.

Keywords: bovine; brucellosis; seroprevalence; potential risk factors; Algeria.

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REGIONAL PRIORITIES FOR THE DESIGN OF SUSTAINABLE ARCHITECTURE BY LEED METHOD IN TEHRAN

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ABSTRACT

In today's world, every building must be designed to minimize the need for fossil fuels, energy efficiency in today's buildings is the first goal to improve energy consumption, high energy costs and severe environmental impacts, the demand for building design Increased sustainability, many developed countries now use standards to increase the efficiency of buildings that are more compatible with our environment. In a way, it has become competitive with other buildings to offer to the consumer market. The purpose of this study is to achieve a strategic priority classification responsive to Tehran's climate that can be the basis for measuring the success of sustainable projects and such designs, so based on areas that have this advantage; it was found that regional priority credits are determined according to its sub-criteria. It should be noted that this research is applied in terms of purpose, in terms of approach is survey and exploratory study. The main tool of data collection in this study was a questionnaire that was designed for different purposes and after obtaining approval was distributed among 86 architects and civil engineers. After distributing and collecting data, performing the necessary analysis through SPSS, Excel and Matlab software was on the agenda. Finally, the results of the study led to the identification of 10 indicators in the form of 5 groups and their final weight was calculated.

Keywords: Sustainable Architecture, LEED, regional priority, credit, clean energy

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DIVERSITY AND SPECIES COMPOSITION OF MANGROVES SPECIES IN PILAR, SIARGAO ISLAND, SURIGAO DEL NORTE

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ABSTRACT

Mangroves are considered the most significant coastal ecosystem components and among the most productive and biologically complex ecosystems on the planet. The assessment of mangrove species plays a critical role in preserving and protecting the mangroves forest. The study aimed to assess the mangrove species in Pilar, Siargao Island. The belt transect was employed with a dimension of modified 10 m x 12 m and was installed per quadrat. Eight mangrove species were identified under four families, and these are B. sexanguela, C. decandra, R. apiculata, R. mucronata, A. alba, A. marina, L. littorea, and X. granatum. One species, C. decandra, is categorized by the IUCN as a near-threatened state. Results from the mangroves vegetation structure show that R. apiculata got the highest relative frequency (26.32%), density (35.46%), and dominance (55.08%) therefore, it has the highest importance value (116.85%). This further implies that R. apiculata is the most essential and acclimated mangrove species in the study area. The species diversity in Pilar, Siargao Island falls under very low diversity (H'=1.63), which might be attributed to some human-related disturbances. Thus, further consideration in future planning and conservation to increase the mangrove ecosystem's resiliency is needed.

Key words: mangroves management, diversity, dominance, conservation status

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THE STRUCTURE OF THE FOREST UNDER CLIMATE CHANGES AND QUESTIONS OF FORESTS MANAGEMENT IN THE WATER CATCHMENT BASINS OF THE RIVERS (*SOME AREAS OF PRE-BAIKAL FOR EXAMPLE*)

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ABSTRACT

On the background of climate dynamics during last decade, the Baikal Region manifests considerable changes in the whole biota structure. It is seen in the structural-dynamic organization, trends of forests development due to considerable variability of vertical and horizontal structures in the coenoses. Especially this is characteristic for the forest's formation at the contact of different environments - at the boundary of zonal vegetation types and height belts in Pre-Baikal. Projects of protective forests in the basins of the rivers flowing into Lake Baikal in forests management for water protection and establishment of forests site under special protection within near-shore protective shelter belts excludes industrial forest cutting and limits other forms of forests use. Accounting of environment protection functions of forests at forests management and establishment of validity categories (not only for utility) will allow to stabilize hydroregimes and functioning of lake ecosystem in the whole.

Key words: structure of the forest, forests management, water catchment basin, Pre-Baikal areas.

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PELVIC FLOOR EXERCISES FOR A WOMAN WITH STRESS URINARY INCONTINENCE: CASE STUDY

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ABSTRACT

Urinary incontinence (UI), the complaint of any involuntary leakage of urine is a disorder that affects women far more frequently than men. This case study shows a woman aged 48 diagnosed with stress UI. She experienced up to three episodes of incontinence per day and required the use of sanitary pads. Symptoms of urgency and frequency up to nine times per day were also reported. Symptoms worsened after each effort. Pelvic floor exercises are recommended to the woman for a period of 3 months. After 12 weeks the patient reported improvement of stress incontinence symptoms and reduction in incontinent episodes. This treatment isn't very recognized in Albania.

Key words: Urinary Incontinence, Pelvic Floor Muscle Exercise, Pelvic floor

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PROCESS OF EXTRACTION OF CAROTENOIDS FROM CO_2 UNDER LIQUID-VAPOR EQUILIBRIUM CONDITIONS

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ABSTRACT

In this study, the extractability of lycopene and β-carotene from tomato skin and pulp using as solvent the liquid CO_2 under its liquid-vapor equilibrium conditions was studied. The temperature effect (281K and 299K, corresponding to CO_2 equilibrium pressures of 54 bar and 64 bar respectively) and the use of non-toxic modifiers (ethanol, olive oil) in the lycopene and β-carotene content of the liquid CO_2 extracts from tomato skin and pulp are observed. The liquid CO_2 extraction of tomato pulp at 299K yielded a higher content of β-carotene (18.2 μg/g tomato) than at 281 K. The best results regarding the amount of lycopene were obtained at a temperature of 299K in presence of olive oil (6.84 μg/g tomato) whereas the optimal extraction process parameters of β-carotene are at 299K temperature and 64 bar in presence of ethanol (19.8 μg/g tomato). The addition of 2% ethanol as CO_2 co-solvent at 299 K increased the amount of lycopene and β-carotene extracted from tomato skin and pulp whereas the addition of 2% olive oil at 299 K increased slightly the extracted amounts of lycopene but decreased drastically the extracted β-carotene from both tomato skin and pulp.

Keywords: lycopene, β-carotene, liquid carbon dioxide, tomato, high pressure

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HARNESSING THE MEDICINAL POTENTIAL OF SELECTED FRUIT AND VEGETABLE WASTE AGAINST GRAM POSITIVE BACTERIA

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ABSTRACT

Many fruits and vegetables are being thrown in the garbage because some believed that these were just rubbish, but nowadays, fruits and vegetables may not be considered wastes anymore. Fruit and vegetables peel is known to be agro-waste, which is discarded into the environment. Instead of being used as a source of antimicrobials, environmentalists and researchers found ways on the antibacterial potential of some fruits and vegetable peels. The presence of important components that can be used for pharmacological or therapeutic purposes has also been discovered by unique peel studies. This study employed a quasi-experimental design (QED) in selected fruits and vegetables waste peel of Cabanatuan City Public Market to determine their antibacterial potential against *Staphylococcus aureus* ATTC 25923. Ethanolic extracts were tested for the antibacterial screening using disk diffusion assay. Visual assessment was used for the results of antibacterial potential such as the presence or absence of clear inhibition or halo around the paper disc. The results showed that peel extracts of *Musa acuminate* L., *Dimocarpus longan* L., *Ananas comosus* L., *Carica papaya* L., *Citrus reticula* L., and *Allium cepa* L. exhibited inhibitory growth against *Staphylococcus aureus* ATTC 25923 while *Ipomoea batatas* L., *Cucurbita maxima* D., *Luffa cylindrical*, and *Moringa oleifera* L. did not show antibacterial potential against *S. aureus* ATTC 25923. Therefore, this study can definitely open up as a scope for future utilization of the waste for therapeutic purpose.

Keywords: Antibacterial Screening, *Staphylococcus aureus*, Fruits and Vegetables Waste, disk diffusion assay, Antibiotic Resistance

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EFFECTIVE USE OFFRESHLY HARVESTED, FREEZ DRIED AND PROCESSED USE OF POMEGRANATE *(Punica granatum L.)* FRUITS IN PAKISTAN

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ABSTRACT

This study is based on the effective use of freshly harvested, freeze, dried and processed use of pomegranate *(Punica granatum L.)* fruits in Pakistan, locally pomegranate is known as Anar. pomegranate is a seasonal fruit crop therefore, rich in many macro and micro food nutritional components to food diet of consumer by eating this in any form it active the immune system in terms of antioxidant, nutritional therapeutic, wound healing, thirst quenching and appetite properties. Pomegranate arils were always hold by outré hard cover and inside the arils were separated by white albedo membrane which gives a protection to the seed of anar. However, studies have shown that pomegranate juice and arils are rich in total carbohydrates and sugars, proteins and amino acids and also have an abundant source of vitamin C 226.8mg, vit. K 44.2mg and folate 1.5mcg. In conclusion this study focuses the health benefits of pomegranate as functional food ingredients in consumer diet to protect their health by consuming pomegranate as food supplement for health concerned.

Keywords: Pomegranate, antioxidant, vitamins, total carbohydrates.

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MODERN TRENDS OF FORMATION OF THE FORESTS IN RIVERS BASINE WHICH PROVIDE THE STABILITY OF GIDROLOGICAL REGIME OF LAKE BAIKAL (EAST SIBERIA)

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ABSTRACT

Due to this fact, it is especially important to establish the peculiarities of spatial-temporal variety of forests structure in the context of modern trends in environmental studies, where it is necessary to obtain information mass (quantitative and qualitative ones) in order to forecast the way of forests development in the basins of rivers forming hydrologic regimes of lakes on the background of climatic fluctuations at the regional-topological level of environmental organization. Finding out of structural-dynamic organization of forests in the basins of rivers flowing into Lake Baikal will allow find out in time probable changes in lake hydrologic regimes with time.

Keywords: modern trends of forest formation, rivers basin, hydrological regimes, Lake Baikal, East Siberia

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DATA ON THE PALYNOMORPHOLOGICAL FEATURES OF FOUR PLANTS OF *ANEMONE* GENUS, IN ELBASAN REGION

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ABSTRACT

Palynomorphological features of four plants of *Anemone* genus, collected in fresh conditions in different areas of Elbasan region (Krastë-Elbasan, Ruen-Rrajcë, and Guri i Zi) were studied by light microscope X 400-1000. Similarities of aperture were identified, which appeared variable from three furrows at *apenina*, *nemorosa*, and *ranunculoides* plants to six or more furrows at *hortensis* plant. The sculpture of exine varied from microechinate to perforate at *nemorosa*, *ranunculoide*s, and *hortensis* plants, varied from microechinate to reticulate at *apennina* plant. While furrows were sharp tips with membranes equipped with ornamentals. The pollen grains of *Anemone apennina* plant were the smallest ones in almost all dimensions among all palynomorphological features studied, except for the furrow length of pollen grains of *Anemone ranunculoides* plant, which appeared smaller than those of other plants studied. The biggest polar and equatorial axis dimensions were identified at *Anemone ranunculoides* plant, while in terms of exine thickness, the biggest size of pollen grains were found at *Anemone hortensis* plant.

Keywords: Pollen grains, exine, furrow, sculpture, Anemone, Elbasan.

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PROPAGATION MECHANISMS OF BLAST-INDUCED GROUND VIBRATION (BIGV) IN DIFFERENT GROUND CONDITIONS

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ABSTRACT

Blasting operations are extensively practiced in mining activities, civil engineering projects, tunnelling and underground excavation works. Provided that blast-induced ground vibration BIGV is one of the most hazardous impacts generated by this rock fragmentation technique, a great attention has been drawn to its prediction and monitoring in different geotechnical contexts. Prior studies have extensively investigated the propagation behavior of BIGV in different rock masses based on the analysis of parameters such as Peak Particle Velocity PPV, the frequency and acceleration. However, little research has been conducted on the propagation behavior of BIGV in soil mediums such as sand and this subject has not been previously assessed using Peak Vector Sum PVS as the evaluation parameter. This paper investigates PVS levels generated by surface hard rock blasting activities located nearby sand mediums under loose dry, compacted and water-saturated conditions. For this purpose, laboratory-scale ground vibration monitoring experiments were conducted on 3 main physical models placed in a tank. A ball drop apparatus ensured the artificial simulation of BIGV. In the course of this experimental investigation, 105 ground vibration tests were carried out and 135 Peak Vector Sum PVS measurements were recorded. The paper provides an insight into the propagation mechanisms of BIGV at increased distances from the ground vibration source in loose dry sand and water-saturated sand and discusses the efficiency of water-saturation and densification processes on reducing PVS levels generated by hard rock blasting activities located nearby sand mediums.

Key words: Blasting impacts, Blast-induced Ground vibration, Peak Vector Sum, Sand.

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ECOLOGICAL ASPECTS OF BIOSECURITY IN MODERN AGROECOSYSTEMS

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ABSTRACT

Antibiotic resistance is a serious threat to human health and biosecurity across the world. The soil microbiome plays an important role in the development and spread of antibiotic resistance in humans. The aim of this study was to detect the antibiotic resistance soil bacteria in different agroecosystems. We have isolated 244 dominating bacteria; among of them 53 antibiotic-resistant strains had been detected. The most isolates belonged to multi-drug resistant strains, greater than 62,3% of which were resistant to 9 antibiotics. A study of the agroecosystems where Capsicum annuum, Vitis vinifera, Rubus idaeus L., Petroselinum crispum were cultivated showed that the microbial community of soil samples have been characterized by a high content of antibiotic-resistant microorganisms. From the soil were isolated antibiotic resistant anaerobic and aerobic microorganisms: Clostridium perfringens, Clostridium oedematiens, Enterobacter cloacae, Enterococcus faecalis, Hafnia alvei, Bacillus megaterium, Bacillus mycoides, and Pseudomonas aeruginosa. Modern agroecosystems are the source of spread of pathogenic and conventionally pathogenic microorganisms with detected multiple antibiotic resistances and potentially endangering of human health.

Keywords: agroecosystem, antibiotic resistance, biosecurity, microbiome, soil.

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AN ANALYSIS OF LOGISTICS VILLAGES IN TURKEY: KONYA SAMPLE

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ABSTRACT

Logistic center is a region where is operating national and international shipping, logistics and distribution activities from different operators. Logistic centers are becoming important hubs because of some criteria such as location according to transport network, the roles in regional development, economic developments in immediate surroundings. In this study, the current position of Kayacık, Konya examined with GIS analysis. As a result of criterias analysis, Konya has highway, railway, airway and being located transit point in terms of energy within the framework of east-west main axis. The study talked about how GIS works and his role to select the best decisions principally the suitable location of logistics village.

Keywords: Geographic Information Systems (GIS), Logistics Villages.