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## CHARACTERISTICS OF CONSUMPTIVE WATER USE OF MILLET AND SORGHUM DEPENDING ON THE SOWING TIME IN DRY CONDITIONS OF STEPPE ZONE

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### ABSTRACT

The article presents data on the influence of different sowing times on consumptive water use of millet and grain sorghum crops when grown in the conditions of the eastern part of Ukraine. The research was carried out on the experimental field of Lugansk State Agrarian University in 2011–2012 and 2016–2018. On average for 2016 – 2018 the total consumptive water use of millet from a metre-deep layer of soil was 2052.4 m<sup>3</sup>/ha. The greatest total consumptive water use was on the sowing date on May 5 (2589.7 m<sup>3</sup>/ha). The minimum total consumptive water use was during sowing on June 5 (1432.7 m<sup>3</sup>/ha). The smallest amount of water for the formation of 1 ton of grain was on the sowing date on June 5 (631.9 m<sup>3</sup>/t). The greatest payback of water resources by grain yield was on late sowing dates (1.43-1.66 kg/m<sup>3</sup>). More economical use of soil moisture for the formation of 1 ton of grain when growing grain sorghum was noted on a sowing date on May 15 (462.7 m<sup>3</sup>/t). The maximum payback of water resources with sorghum yield was also obtained at this sowing period (2.16 kg/m<sup>3</sup>).

**Key words:** sorghum, millet, sowing time, water-use ratio, yield, water availability, moisture reserves.

## EXTRACELLULAR HYDROLYTIC ENZYMES OF YEASTS ISOLATED FROM FRUIT AND BEET PEELS IN ALGERIA

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### ABSTRACT

Forty-two yeast strains were isolated from natural sources in Algeria. Based on the sequence analysis of the 26S ribosomal RNA D1/D2 domain they were identified to be of 8 species belonging to the genera *Aureobasidium*, *Candida*, *Clavispora*, *Hanseniaspora*, *Pichia*, *Rhodotorula* and *Vishniacozyma*. All yeast isolates were screened for cellulase, amylase, protease and lipase production. Six strains of *Aureobasidium pullulans*, *Rhodotorula diobovata* and *Vishniacozyma tephrensensis* demonstrated ability to produce at least one extracellular enzyme. The enzyme activity index (EAI) for cellulase was noted to be prominent in the isolates of *A. pullulans* (A1, A3, A5) and *V. tephrensensis* A4 as 2.3 and 2.1, respectively. Highest EAI for amylase and protease was also seen in *A. pullulans* isolate A1 (EAI = 2.9) and isolate A3 (EAI = 1.9), respectively. For lipase, the EAI was superior in *V. tephrensensis* A4 (EAI = 1.5) when compared to the isolates of *R. diobovata* (B1, O5) (EAI = 1.4) and *A. pullulans* A5 (EAI = 1.3). To the best of our knowledge, this is the first report of cellulase and/or lipase activity in *V. tephrensensis* and *R. diobovata* strains associated with apple, orange and beet peels in Algeria. Furthermore, the strain *A. pullulans* A5 showed enzymatic activities for all the enzymes screened in the current work. Thus, our study can provide further information about the diversity and enzyme production by yeasts and demonstrated the potential for yeast isolated from fruit and beet peels as sources for extracellular hydrolytic enzymes.

**Keywords:** yeast isolation, fruit peels, beet peels, extracellular hydrolytic enzymes, molecular identification.

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## DECOMPENSATION OF CHRONIC OPEN ANGLE GLAUCOMA FOLLOWING A SPINAL STEROID INJECTION: A CASE REPORT

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### ABSTRACT

Corticosteroids are widely used in many different medical conditions. Increased intraocular pressure (IOP) is one of their side effects. We are presenting the case of a patient, female, 58 years old, who presented to our clinic with blurred vision in the right eye. Intraocular pressure was 33 mmHg in the right eye and 12 mmHg in the left eye. She had a history of controlled primary open angle glaucoma under conservative treatment in the right eye. Both eyes had undergone trabeculectomy in the past. The left eye had an advanced primary open angle glaucoma which had been controlled after the Trabeculectomy without any topical medication. She reported a history of a spinal steroid injection 3 weeks ago. Despite the immediate and prolonged use of antiglaucomatous medications, the intraocular pressure did not come back to normal levels, leading to further damage of the optic nerve in this eye. A right eye glaucoma surgery was performed, which stabilized the IOP. The IOP of the left eye remained unaffected. Considering this as a case of steroid induced decompensation of glaucoma, we think that clinicians should inform patients about the possibility of visual complications associated with steroid injections. This would be of great importance especially for patients already having glaucoma or ocular hypertension and for patients who have a family history of glaucoma. Ophthalmologists should also alert glaucoma patients for the possibility of decompensation of the disease from such injections. Nevertheless, we believe that further studies are needed to quantify the amount of IOP elevations following different types of steroid injections.

**Keywords:** glaucoma, intraocular pressure, corticosteroids, spinal injection.

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## ACCOUNTABILITY OF CORPORATE TOWARDS ENVIRONMENTAL ISSUES THROUGH THE LENS OF CORPORATE SOCIAL RESPONSIBILITY (FINANCIAL) AND BUSINESS RESPONSIBILITY (NON-FINANCIAL) REGULATIONS WITH REFERENCE TO TOP 30 COMPANIES ON NIFTY

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### ABSTRACT

**Purpose:** The purpose of this article is to comprehend the response of the corporate towards the environmental concern and how the corporate restore the environment by spending CSR funds on environmental activities. The purpose of this article also comprehends the non-financial environmental disclosure by the corporates and its compliance. **Design / Methodology/ Approach:** In this study, there is a sample of the top 30 companies selected on NSE excluding banks (regulated by RBI) down the line from 2017 to 2020. The methodology is to check the CSR spending on the environment from the total CSR of top 30 companies and for non-financial disclosure on the environment, this paper checked the compliance of BRR by corporates. **Practical Implication:** The study on the corporate performance toward the environmental concern and provide comprehensive viewpoints for contributing financial and non-financial by implementing the policies through CSR and BRR. **Originalities/value:** This paper contributes the literature, as well as the resultant of the corporate compliance on regulation 34, read with regulation 101(2) of Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015. **Finding:** The finding of this paper show the mixed results the corporate spend more amount on CSR does not have a positive relationship with more spending on environmental activities. The other finding regarding non-financial disclosure where again the mixed resultant some of the top companies non-complied under Principle 6 of National Voluntary Guidelines in Business Responsibility Report.

**Keywords:** Business responsibility report, corporate social responsibility, corporate environmental responsibility, environmental disclosure, national voluntary guideline.

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## REGENERATION EFFICIENCY ASSESSMENT OF A UMO TREATED WITH ACTIVATED KARAQEVA'S KOSOVO BENTONITE

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### ABSTRACT

The regeneration efficiency of activated Karaqeva's (Kosovo) bentonite was assessed with a used motor oil (UMO) having run about 15 000 - 20 000 km. The bentonite was activated with three activation methods: acid, alkaline and combined acid - alkaline activation. The optimal activation conditions of Karaqeva's bentonite with the employed oil and each of the three activation methods was found out. Bentonite samples were characterized using X-ray powder diffraction (XRD), Fourier transform infrared (FTIR), as well as cation exchange capacity (CEC), surface and porosity properties before and after treatment with all three methods. The activated bentonite's oil regeneration efficiency could be predicted using the following key parameters; CEC, Ssp, Vt, Smi and Sext. Karaqeva's bentonite activated by the acid and combined activation method in the totality of the performance shows the best efficiency for the UMO regeneration.

**Keywords:** Karaqeva's (Kosovo) bentonite; acid, alkaline and combined activation; UMO regeneration efficiency.

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## USE OF SOYBEAN GENETIC RESOURCES TO CREATE HIGHLY ADAPTIVE VARIETIES

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### ABSTRACT

The scientific work highlights the importance of legumes in the agricultural sector of the world and Ukraine. The role of soybeans as an important protein crop in solving the world's food problem is shown. The narrow genetic base of existing soybean varieties requires the involvement of new source material in hybridization, especially one that has high adaptive properties. The study of a large volume of collection material over many years, numbering more than 6,000 samples, has identified donors and sources of such economically valuable traits as precocity, increased productivity, drought resistance, high attachment of lower beans, increased protein and fat content in seeds. It was found that ultra-early accessions of soybeans originate mainly from Sweden, Canada, Poland, Germany, and the Far East of Russia. Late-maturing genotypes are concentrated in the United States, Argentina, Brazil, Japan, India, Korea, Morocco, Australia, and Colombia. Such varieties as Arcadia Odeska, Khersonska 2, Prikos №5, Swift, Hodgeson, Evans are distinguished by high adaptive potential in the conditions of the South of Ukraine. Increased soybean yield is not due to one economically valuable feature, but the optimal combination of a number of indicators. High combination ability is characterized by soybean varieties from the USA Amsoy 71, Beeson, Corsoy, Evans, Swift, Harrison, as well as domestic origin – VNIIMK 9186, Kirovogradskaya 4, Belosneshka, Peremoga, Arcadia Odeska, Iskra. At the present stage to hybridization is necessary to involve new varieties Amethyst, Krasa Podillya, Alma, and Anthracite. The data of general and specific combination ability which need to be considered in breeding work are resulted. Highly adaptive varieties of soybeans have an increased growth rate in the initial stages of development, deeply penetrating into the soil root system, able to use moisture from deeper horizons. At the beginning of the growing season, the leaf surface of such genotypes grows rapidly before flowering, and then remains at the same level. They are characterized by small, upright leaves, especially in the upper and middle parts of the bush, which promotes better penetration of light into the lower sections of the canopy. In the process of research in the period 1979-2020, 36 soybean varieties were created, which are entered in the state register and recommended for cultivation in all areas of Ukraine.

**Keywords:** soybean, vegetation period duration, adaptability, collection samples, yield, protein content, economically valuable traits, new varieties, general and specific combination ability.

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## THE CONDITIONS OF MARKET FISH POPULATIONS, THAT IMPACT ON SHKODRA LAKE STABILITY, WATER QUALITY AND SUSTAINABLE FISHING

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### ABSTRACT

Fishes are the component that performs the transport of nutrients in the pelagic of the Lake Shkodra. They constitute one of the few links of the food chains, which in food regimes is dominated by herbivorous-detrital structures and which contribute to the ecological stability. Market fishes constitute the main biomass of the lake fish community, therefore the study of the situation of their populations is important in terms of problems and management, for a sustainable fishing. Situations of fish populations have been studied through the assessment of threatened species (CR, EN, VU), based on declining of catch (IUCN, Version 3.1 of Red List of Threatened Species, 2001 Categories & Criteria). *Alburnus scoranza* and *Chondrostoma nassus* are defined in the CR category. *Carassius gibelio* (that compete *Cyprinus carpio*), *Perca fluviatilis* and *Leucos basak* predominate in catch and should continue so for a long time. In the Montenegrin part of the lake there is a large decrease in the catch of migratory species to the sea. Catching of fish should be planned in accordance with the lake productivity, licensed for catching in detail by species, as well as controlled in detail. Factors leading to negative developments, such as water regime disturbance, the presence of pollutants, damage of the shore vegetation, erosion and especially illegal fishing, should also be monitored.

**Keywords:** market fish populations, impact, Shkodra lake, stability, water quality, sustainable fishing.

## ASSOCIATION OF DELIVERY MODE AND BREASTFEEDING

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### ABSTRACT

Breast milk is a rich fluid. The benefits of it already are worldwide known because there are a lot of studies that show it. But there are some factors that affect the process or the choice of feeding with breast milk like as mother and fetal conditions. This study aims to describe the association between mood of delivery and breastfeeding and especially the initiation of the breastfeeding How the breast's condition affects the breastfeeding. This is a point (cross-sectional) study, which was implemented for a period of 5 months during the years 2018-2019. The survey included 200 women with a distribution by race, educational level, age, number of pregnancies, mode of delivery, number of abortions, etc. The study used a questionnaire with structured and semi-structured questions through which information was obtained on a number of general elements and mainly those related to the way the birth process and the impact on breastfeeding. The results show that the age group with the greatest involvement in this study is 19-29 years old with 51.5% followed by the age group 30-39 years old with 47% and only 1.5% are in the age group over 39 years' old. Mothers with higher educational level (49.7 %) followed by mothers with 8 years of schooling (29.1%) and mothers with high school (19.9%). 50% of mothers delivery by normal delivery and 49 % of them by cesarean- section. There is a statistically significant relationship between the delivery mode and breastfeeding,  $\chi^2 = 4.348$ ,  $P < 0.05$  ( $P = .037$ ); between the delivery mode and the time of starting breastfeeding,  $\chi^2 = 6.943$ ,  $P < 0.05$  ( $P = .031$ ).

**Keywords:** normal delivery, cesarean section, breastfeeding.

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## PERCEIVED-HOTELSCAPES AND ITS IMPACT ON CUSTOMER PATRONAGE: AN EMPIRICAL PERSPECTIVES

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### ABSTRACT

This study reviews the impact of hotelescapescapes elements on customer cognitive responses and customer patronage in Saudi Arabia. This study explored the moderation role of customer motivation. The present study was developed after a systematic review of past literature. The present study found the critical influence of the study's variables on customer patronage. Furthermore, the study provided some understanding of how hotelescapescapes affect customer patronage in Saudi Arabia. Three hundred and nine (319) usable responses were obtained. Data were analyzed using Statistical Package for Social Science (SPSS) and Partial Least Square-Structural Equation Modeling (PLS-SEM). The study's findings show a positive and significant relationship between hotelescapescapes and customer patronage and cognitive responses. At the same time, there was no evidence showed to support the moderation effect of customer motivation. Stimulus Organism and Response (S-O-R) theory was used to underlie the conceptual framework. In addition, some implications of this conceptual model for theory and practice are discussed.

**Keywords:** Hotelescapescapes, Customer Patronage, Customer Cognitive Responses, Customer Motivation

## THE HISTORY OF DEVELOPMENT AND THE PERSPECTIVES OF IMPLEMENTATION OF INNOVATIVE TECHNOLOGIES FOR THE ENVIRONMENTALLY SAFE USE OF WATER AND LAND RESOURCES IN UKRAINE AT THE BEGINNING OF THE 21<sup>st</sup> CENTURY

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### ABSTRACT

The article finds that at the beginning of the 21st century the implementation of innovative technologies for the environmentally safe use of water and land resources in Ukraine has developed significantly and has great perspectives, especially in climate change. The Ukrainian scientists have created and improved economic and mathematical models and computer programs to optimize the functioning of agroecosystems in different soil and climatic conditions of Ukraine. The determining factor for expanding the implementation of innovative technologies in Ukraine was the cooperation of Ukrainian scientists with foreign scientists. An example of such cooperation was the theoretical confirmation by Ukrainian and Chinese scientists of the effectiveness of simulation and dynamic computer models developed by American scientists. It was found that due to the practical application of such models in different soil and climatic conditions of Ukraine and China, a significant contribution was made to the further development and improvement of innovative technologies to reduce soil erosion degradation. These computer models are efficient due to the extraordinary dynamism in time and variability in space and have great perspectives for future implementation. The priority direction of research of Ukrainian scientists for environmentally safe use of water and land resources with the use of geoinformation technologies and methods of space monitoring is proved. These innovative technologies were aimed at creating and widely using powerful databases and knowledge, as well as cartographic products for environmental and reclamation monitoring of water and land resources in different soil and climatic conditions of Ukraine – Steppe, Forest-Steppe and Polissya. It was found that Ukrainian scientists have widely used the international experience of managing the transformation of reclamation systems as a result of the international Ukrainian-Dutch project «Watermuk». It is concluded that the use of these innovative technologies in different soil and climatic conditions of Ukraine has provided the necessary level of soil protection from erosion, environmentally safe use of water and land resources, high productivity and ecological balance of the environment. Which will expand the perspectives for the implementation of optimal agroecosystems in the world, especially in climate change.

**Key words:** development, improvement, environmentally safe use, water and land resources, geoinformation technologies, methods of space monitoring, perspectives of implementation.

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## LEVEL OF KNOWLEDGE AND NURSING PRACTICES ON DIABETIC FOOT MANAGEMENT

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### ABSTRACT

Entry and purpose: Diabetes is one of the main causes of mortality and impossibility. Diabetic foot is a more frequent complication. Nurses have an essential role in preventing diabetic foot problems, in caring for and educating patients at risk for diabetic foot. Thus, the high level of knowledge and nursing practices will always provide better care for the patient. The aim of this study is to assess the knowledge and practices of nurses in diabetic foot management in the city of Gjakova. Methodology: This is a cross-sectional study, carried out during the June-August 2021 time period. As a population for study, 120 nurses are included. For this study I used a self-administered questionnaire. The data was worked out in the SPSS statistical package. Results: Based on the results of the study on the impact of demographic factors, it resulted in education, division and experience at work affecting the level of practices and knowledge on diabetic foot management ( $P < \text{value } 0.05$ ). In our study, only 15% of nurses were trained in diabetic foot care. Asked if they needed or wanted to take other training, 78% expressed interest. In general, nurses have good knowledge in diabetic foot management: in assessing knowledge of risk factors in their foets, as well as in diabetic foot prevention. 52% of nurses stated that they needed training. Conclusion: Nurses must participate continuously in training to learn new techniques, which are efficient in diabetic foot management.

**Key words:** diabetes, diabetic foot, management, nurse.

## THE IMPORTANCE OF URINE CULTURES IN THE FOLLOW-UP AFTER FIRST FEBRILE UTI

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### ABSTRACT

Background: Studies evaluating the role and utility of the routine follow-up of urine cultures after the first febrile urinary tract infection are limited. Was evaluated the validity of routine follow-up urine cultures in a group of children who had their first episode of urinary tract infection at the age\_of 1month to 6 years. Study design: The research findings are derived from one prospective randomised study; 676 (468 girls) children aged of 1 month to 6 years were included in the study. The time of recurrence and the possible symptoms during the recurrent urinary tract infection (UTI) were also investigated. The follow-up period after the first UTI was of 1 year. Urinalysis and urine culture follow-up were performed every month during the first 6 months and then every other month. The urine was collected by sterile bag collection in all children. Results: were performed 4796 routine urinalysis and urine cultures were obtained; 158 patients (23%) had a positive urine culture during the follow-up, 106 (15,6%) of them were girls. 54 (1,1%) febrile UTI were excluded; 4504 (95%) urine cultures were negative; 68 (1,4%) contaminations; 114 (2,4%) asymptomatic bacteriuria; 56 (1,2%) lower UTI. E. Coli was most frequent micro-organism; it was found in 112 (50%) of all cases and in 77% of upper UTI. The cost of urinalysis was 2,3 euro, that of urine culture was 11,6 euro, that of urine bag was 1,2 euro and that of urine cup 0,9 euro: a total of 16 euro per patient for 1 control. The total cost of 4796 controls was 76.376 euro. Conclusions: We noted a high negative predictive value, which authenticates that a negative urinalysis is followed almost by a negative urine culture. Urine culture follow-up is not necessary for the children after first febrile UTI. Such an approach would result in significant cost savings.

**Keywords:** urine culture follow-up, febrile UTI

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## IMPLEMENT POLICY ON STUDENT SCIENTIFIC RESEARCH AT VIETNAM UNIVERSITIES AND EDUCATIONAL INSTITUTIONS TODAY: ISSUES TO DISCUSS

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### ABSTRACT

Form the time students are involved in studying at universities they can engage in scientific clubs. Hence, the issue of scientific research for students at higher education institutions in Vietnam today is an extremely urgent and important issue. Scientific research not only enhances the discovery and understanding of knowledge for students, but also is a measure of the training quality of higher education institutions today. Therefore, higher education institutions need to have appropriate scientific research policies to promote as well as encourage students to participate in scientific research activities. The study findings suggest that good policy of scientific research of students is the viewpoint and policy of the management agencies on scientific research towards students, aiming to develop research passion as well as improve the current training quality at the university. Schools.

**Key words:** student scientific research, higher education, Vietnam universities, Binh Duong province.

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## POWERFUL ALGORITHM FOR ADAPTIVE RECOGNITION OF DYNAMIC SYSTEM PARAMETERS

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### ABSTRACT

Objectives. The aim of this work is to propose an algorithm to solve the problem of adaptive identification of dynamic system parameters under uncertainty conditions with respect to drift parameters. Methods: Dynamic (temporal) characteristics are analyzed to form an image of adaptive systems in a turbulent atmosphere. The sterol parameter is calculated analytically based on the generalized Huygens-Kirchhoff principle. Results: The simulation result showed a fast approximation of the localized identification algorithms. Novelty: The proposed algorithm provides higher definition quality than the usual least squares weighted exponential method or competitive recognition algorithm.

**Keywords:** Adaptive system, Dynamic System, Algorithm, Limited Response Time, Modeling, Control.

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Vol. 12 (1): 125-132 (2022)

## ORGANIZATIONAL, ETHICAL AND LEGAL ASPECTS OF PALLIATIVE CARE IN ALBANIA

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### ABSTRACT

Palliative care is a fundamental human right. The absence and limitation of palliative care provision to those who need it would not be ethical when there are effective affordable methods. Palliative care services in Albania face major challenges. Some of these challenges are being addressed, including the work being done by some donation and state-based organizations. There is a need for greater investments in health and palliative care services and focusing on patient rights will be a priority in the future. In general, palliative care services in Albania are scarce and fragmented. It should be noted that palliative care is not sufficiently integrated into the public health care system. In Albania, palliative care is mainly considered as a palliative oncology service. In this perspective, a national palliative care policy and strategy is needed to create access for all terminal patients, including cancer but also advanced chronic diseases for the elderly, children and adolescents and people living with HIV and AIDS. Also, special attention is paid to the application of ethical principles in the practical activity of Palliative Care services in Albania.

**Keywords:** palliative care, oncology service, Albania.

## THE LANDSCAPING FEATURES OF THE CITY OF BALASHOV, RUSSIA

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### ABSTRACT

The landscaping of any urban, municipal, or rural district or settlement is one of the most important indicators in the modern world. The relevance of this topic is growing every year, due to the constant growth and development of the industrial activity of cities, as well as increasing settlement of territories by people. This problem is particularly acute in developed countries, so it is the subject of special attention of all authorities, various political parties, the media, and the general population. People, within their capacity, strive to improve their personal space, while wishing that the surrounding territories, namely the territories of "common use", were of a decent level, because this contributes to creating conditions for a comfortable life not only for an individual but also for the entire population living in a certain city, settlement, district, or micro district. The problem of landscaping is extremely relevant for a long time. The level of landscaping in almost all cities, settlements, and districts does not reach the necessary level for a comfortable life of society. Since the territories of "common use" do not meet the continuously increasing criteria of a modern person's life. Therefore, only a small part of Russian citizens are satisfied with the state of landscaping.

**Keywords:** landscaping, local self-government, municipal formation, urban space, housing, and communal services.

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## TOWARDS A GUIDELINE OF A SPILL MANAGEMENT: INDUSTRIAL SITES AS A CASE STUDY

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### ABSTRACT

Industrial spills are a major environmental danger all over the world. Spill management and judgment require a comprehensive deterministic spill-event management is concerned with managing chronological and geographical unpredictability and estimates empirical hazards due to limited spill evidence. Environmental spills for the industry can be defined as unintentional discharges of hazardous gases, liquids, and solids from operations and processes, with harmful effects on flora and fauna and negative environmental consequences that require immediate care. The goal of this study is to outline spill preventative measures, contingency planning, and response requirements for industrial sites to endorse the secure reaction to leaks and spills or releases of hazardous pollutants into the environment; to remove or reduce negative impacts might a spill take place; and to safeguard health and safety of workers and neighborhood. this outlines the people and material resources provided to clean up each spill, as well as the project's reporting forms. This study intended to guarantee that, in the case of a severe leak, all required safeguards are in place to safeguard firm employees, contractors, the environment, surrounding communities, and properties. It could also be used as a starting point for the industrial site's subcontractors. Additional steps to strengthen excellent practices could be incorporated.

**Keywords:** Environmental spill, industry, contingency planning, leak, hazardous pollutant.

## MARKET ASSESSMENT OF PAYMENT FOR ECOSYSTEM SERVICES

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### ABSTRACT

This article is devoted to the market assessment of payment for ecosystem services. The article describes the types of payment, provides examples of the assessment of ecosystem services. The author analyzed theoretical and practical approaches to the economic assessment of ecosystem services. The economic assessment of environmental services is the result of economic calculations, which in turn makes it possible to create a qualitatively new information base for making managerial decisions in environmental management. The methodological approaches analyzed in this article contribute to the formation of various environmental management programs, make it possible to carry out an economic assessment of the effectiveness of environmental projects, and are also aimed at developing compensation mechanisms for territories where intensive use of environmental services is traced.

**Keywords:** Ecosystem, assessment, payment, natural resources, ecosystem services, market price.

## POSSIBILITIES OF TERRITORIAL BRANDING AS DEVELOPMENT MANAGEMENT TOOL FOR THE FAR EAST OF RUSSIA

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### ABSTRACT

Modern branding of territories is becoming an active tool for regional governance more and more often. The search for the identity of cities and the federation subjects leads to attraction the attention of specific target audiences - stakeholders who are able to solve the current tasks of the territories. Eleven subjects of the federation, which are the part of the Far Eastern Federal District of the Russian Federation, have different opportunities and face different threats. At the same time, they are united by the common goal of retaining the existing population and attracting a new one. A competent territorial branding based on reliable information about the current state of the territories and the plans of their administrations is called upon to solve this problem.

**Key words:** branding of territories, constituent entity of the federation, strategy of social-economic development of the region, national ratings, target audience, Far Eastern Federal District.

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## FORECAST ESTIMATES OF FAR EASTERN EXPORT TREPANG TO CHINA

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### ABSTRACT

Foreign trade plays a significant role in the Russian economy. The development of Russia's foreign trade turnover has recently been characterized by an upward trend. Russia's trading partners in the seafood market have become more active. In this article, the study of the export market of the Far Eastern mariculture is considered. The purpose of the study: to identify the main participants in the seafood market in the Primorsky Territory and to make forecasts of the export opportunities of trepang producers to China. For the study and analysis of export forecasting, the extrapolation method was used. One of the tasks that arise when analyzing the dynamics of series in extrapolation is to establish the regularity of changes in the levels of the studied indicator over time. When analyzing the statistical basic indicators, it was noted that the levels of the analyzed series undergo various changes – both increase and decrease, therefore, when predicting the analyzed indicators, we can only talk about the general trend of the development of the studied phenomenon, or about the trend to increase or decrease. Therefore, for the calculation of forecast estimates of export indicators of trepang in the region, the extrapolation method was chosen by means of analytical alignment of the dynamic series, i.e., the construction of certain trend equations that would mathematically describe the trend in the development of export opportunities of producers of trepang in Primorye over time. The conducted research contains up-to-date information about the main participants of the Russian and Chinese markets of the Far Eastern trepang; analysis of the export opportunities of trepang producers in the Primorsky Territory. The article presents the forecast estimates of the export dynamics of the analyzed product for the period 2021-2023 in physical and value terms.

**Key words:** mariculture, seafood, trepang, extrapolation, forecasting, region, Primorsky Krai.

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## A PRACTICE-ORIENTED APPROACH TO THE FINANCIAL STATEMENT-BASED BANKRUPTCY DIAGNOSIS

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### ABSTRACT

The current Russia's economic development dictates the need to improve the management of the economic activities of commercial enterprises aimed at increasing the efficiency of the use of resources and capital as a result of preventing financial insolvency. At different levels of management, making optimal decisions depends on the completeness and representativeness of information, the main source of which is financial statements. The financial statements provide an information base for the assessment by internal and external users of the financial position and, if necessary, the development of a crisis management strategy by management personnel. The article presents the main approaches to assessing the financial condition of economic entities (on the example of trade enterprises) based on accounting data using a dynamic model of anti-crisis management.

**Keywords:** financial status, anti-crisis management, information support, financial statements, information, dynamic model.

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## CONTAMINATION OF RAW MILK WITH CONDITIONALLY PATHOGENIC MICROORGANISMS AND ANTIBIOTICS

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### ABSTRACT

Milk quality is influenced by the nature of animal feeding, genetic potential, as well as the hygiene level in the process of obtaining it, which affects the presence of mechanical impurities and bacteria. The uncontrolled use of drugs is often accompanied by their appearance in milk, which affects not only the product quality, but also makes it unsuitable for further use and consumption. The aim of this work was to study the contamination of raw milk with bacteria and antibiotics. During 2019-2020, 425 milk samples were subjected to laboratory tests, of which 407 were tested for the presence of antibiotics. It was found that 58.12% of raw milk samples for microbiological examination are received from June to October. More than half of all samples containing microorganisms were found from May to August. At the same time, the highest microbial contamination was determined in July and August (65.4% and 54.0% of all examined samples, respectively), and the lowest one was determined from September to November (30.6%, 34.7% and 34.3%, respectively). Staphylococcus spp. 41.6%, the bacteria of the Escherichia coli group - 35.4% and Streptococcus spp. - 21.4% dominated among the microorganisms found in raw milk. It was revealed that 55.28% of raw milk samples delivered to the laboratory were contaminated with antibiotics. The most common antibiotic found in raw milk is amoxicillin (38.67% of all samples containing antibiotics), doxycycline was the second one by occurrence (20.89%), then erythromycin and azithromycin were presented (10.67% each). Levofloxacin was less common and it found in 8.44% of milk samples with antibiotics; in rare cases, the presence of streptomycin (6.22%) and trimethaprim (4.44%) was recorded. The most common use of antibiotics was during the summer. On the contrary, the cases of antibiotic detection in raw milk are rare during winter.

**Key words:** raw milk, contamination, seasonality, antibiotics, Staphylococcus, Streptococcus.

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## FISH REPRODUCTION CONDITIONS OF THE VOLGOGRAD RESERVOIR IN THE WATER AREAS NEAR THE VILLAGES OF AKHMAT AND ZOLOTUE IN 2020 IN COMPARISON WITH PREVIOUS YEARS

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### ABSTRACT

The article considers the conditions for the reproduction of fish in the waters of the Volgograd reservoir of the villages Akhmat and Zolotoe, such as level and temperature regimes, as well as production processes (the rate of gross photosynthesis, the rate of respiration of the plankton community, net primary production, which can serve as indicators of the state of the natural food base). According to the results of the fry survey in 2020, the conditions for the fish reproduction in the waters of the Volgograd reservoir of villages Akhmat and Zolotoe should be recognized as very unfavorable, which could be predicted by the dynamics of the level and temperature regimes. Black Sea sprat (*Clupeonella cultriventris* (Nordmann, 1840)), as in previous years, is reproduced in the water area of the village of Zolotoe and is not reproduced in the water area of the village of Akhmat. The high food capacity of the studied water areas has a noticeable effect on the efficiency of reproduction of certain fish species in years with a more favorable level regime but is not able to compensate for the damage caused to the reproduction of fish by a particularly unfavorable regime of the water level in general.

**Key words:** fishery, water hygiene, Sea sprat, water level.

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## OPTIMIZING THE DRY PLANT SAMPLE PREPARATION METHOD FOR EFFICIENT DNA EXTRACTION IN *SYRINGA VULGARIS*

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### ABSTRACT

The aim of the study was optimization of the method of DNA extraction from plant tissues. The cultivar 'Margaret Fenicia' of *Syringa vulgaris* L. species was selected as an object for DNA extraction from plant tissues. The choice of the object stems from the fact that young and old leaves and flowers were simultaneously sampled on the plant during the same growing season. Weighing was performed on a CAS CUV620HV scale with  $620 \pm 0.001$  g weighing limit. The greatest amount of DNA can be extracted from dry material of young leaves. Increasing the weight of the sample up to 30 mg allows a significant increase in the amount of extracted DNA. In conclusion, the degree of DNA extraction from dried young leaves when increasing the sample weight to 30 mg from the recommended 10 mg with the same volume of extracting increases by 18.82%, in dried flowers by 58.9% and in dried old leaves by 44.5%. Both vegetative and generative parts of a plant can be used as dry plant material for DNA production. The correlation between sample weight and extractable DNA for old leaves is 0.86, while the correlation between sample weight and target product when the lysis buffer is added before homogenization is -0.71. Thus, it can be confidently stated that the method of adding the lysis buffer before homogenization significantly reduces the yield of extracted DNA. This suggests that research on this aspect of the work was most likely not studied by the developers of the extraction kits.

**Key words:** DNA; Dry matter; Extraction; Genetics; Plant.

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## ASSESSMENT OF THE PHYTOREMEDIATION POTENTIAL OF AQUATIC PLANTS OF THE BELGOROD REGION FOR WASTEWATER TREATMENT

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### ABSTRACT

The problem of wastewater treatment used by mining processing enterprises is currently extremely relevant in the field of nature management and natural restoration. Among the well-known, the described purifying methods are: mechanical, physico-chemical, and chemical technologies. The analysis of aquatic plants was carried out on the basis of the testing laboratory for agrochemical maintenance of agricultural production of the Federal State Budgetary Institution. The plants for the model experiment were taken from three different growing places. *Typha laxmannii* Lepech. and *Phragmites australis* (Cav.) Trin. ex Steud. were selected on the territory of the upper artificial pond of the "Belgorod State University Botanical Garden"; young plants that had not entered the budding phase were taken for the experiment. *Hydrocharis morsus-ranae* L. was gathered from the right bank in Vezelka River. Plants *Lemna minor* L., *Elodea canadensis* Michx. and *Potamogeton perfoliatus* L. were selected in ponds near the village of Nelidovka, Belgorod region. After the plants were delivered to the model site, they were all washed with running water in order to remove possible contamination from the surface of the leaves and stems. Each species of the selected plants was divided into 2 groups of the same phytomass to obtain statistically reliable results. The plants were placed in plastic containers with a volume of 200 liters filled with  $\frac{3}{4}$  of the waste water from the iron ore enterprise. The most environmentally effective and efficient approach to be considered can be based on a complex of water purification methods using phytoremediant plants. In the course of the present study, it was found the most and the less preferred species for wastewater treatment. In the course of the present study, it was found that the most preferred plant populations for wastewater treatment are plants from anthropogenically transformed zones that already have a certain reserve for the accumulation of pollutants. The least resistant to pollutants was *Potamogeton perfoliatus* L., which began to develop necrotic processes by the 52nd day of the experiment that led to complete death. The species *Phragmites australis* (Cav.) Trin. ex Steud and *Typha laxmannii* Lepech. were the least susceptible to the accumulation of the studied pollutants, although the latter started accumulating copper actively by the 38th week.

**Key words:** Ecology; physico-chemical; phytoremediant; treatment; wastewater; plants.

## COUNTRY ASPECTS OF USE OF TAX INSTRUMENTS ON THE HYDROCARBON MARKET

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### ABSTRACT

In order to solve the problems of the state budget deficit in the post-pandemic period in countries with developing economies, additional efforts are being made to maintain the stability of the national currency and the financial market. At the same time, in countries that provide tax revenues from oil revenues, measures are being taken that are aimed at introducing additional taxes and fees that directly affect the stimulation of investment activity in the field of hydrocarbon production. In this regard, the current tax innovations are aimed at the largest companies in the field of mining in order to generate additional revenues to the budget by revising the provided benefits and preferences for the subjects of the oil and gas sector. Taking into account the agreements adopted in 2020 at the level of the OPEC + countries on the limitation of oil production, undoubtedly, they will fully affect the revenues to the state budget of taxes levied on the extraction of minerals. At the same time, attention should be paid to a number of macroeconomic circumstances of the hydrocarbon sector of the economy of developing countries, namely, the degree of depreciation of fixed assets, since more than 50% of equipment in oil production and more than 80% of those employed in oil refining need to be updated. In this regard, when forming a concept for the development of hydrocarbon policy at the state level, it is important to provide for aspects aimed at increasing the effective return to the economy through the introduction of renewable alternative energy sources, taking into account the increased role of administration in terms of reducing CO<sub>2</sub> emissions and shaping the role of the state's energy security.

**Keywords:** cultural approach, tax policy, emerging markets, natural resource rent, mineral resources, alternative energy.

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## FACTORS THAT LEAD TO CHANGE IN THE MISSION AND VISION STATEMENTS OF ORGANIZATIONS: A RESEARCH ON FIVE-STAR HOTELS OPERATING IN THE TURKISH REPUBLIC OF NORTHERN CYPRUS

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### ABSTRACT

This article presents a study on the factors leading to changes in the vision and mission statements of organizations in the line with the organizational change process. In order to acquire data to measure what this study aims, the qualitative research method and discourse analysis technique have been used, and in-depth interviews and observations have been carried out in five five-star hotels operating in the Turkish Republic of Northern Cyprus. The results obtained by analysing the data regarding the interviews and observations carried out on the sample group of hotels operating in the TRNC clearly demonstrate that certain distinct factors have played a triggering role in organizational change in terms of the mission and vision statements. Based on the results, it is possible to say that the value attached to the employees, motivation of the employees, ability to implement a competitiveness strategy, and ability to create a differentiation strategy are the four triggering factors leading to organizational change in terms of mission statements. Considering the factors influencing the vision, two primary factors, namely management functions, and the triggers leading to change, come to the fore.

**Keywords:** Organizational Mission, Organizational Vision, Discourse Analysis and Organizational Change, TRNC, Tourism.

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## BUSINESS ORGANIZATIONAL RESPONSE TO ENVIRONMENTAL ISSUES

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### ABSTRACT

Environmental issues comprise a vital driver of innovation in business companies. The article begins from the historical view by recognizing the factors and substantial steps in technological innovation associated with raising environmental awareness in recent history. Our research is carried out to determine the similarities and differences between the perceptions of e-business managers of Northern Cyprus and Turkey regarding creativity in environmental issues in the organization. To do so, a descriptive research model is utilized. The research provides information on the extent to which the problems experienced by comparing Northern Cyprus and Turkey are similar to one. It is understood that the new ideas of the creative, managers, and employees related to the business and environmental challenges can be put together, and from these ideas, productivity and production can come to a much better situation with the new management that the business will know to implement. Creativity is not only a thought structure that is necessary to increase the production and productivity of the work-life, to survive international competition, to succeed, but also essential for the growth of the adult youth of the countries as much higher quality people.

**Keywords:** environmental issues; Business organizational response; Managers; business companies.

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## EXPLORING THE ESSENCE OF THE GAME IN CONTEXT INTERACTION OF GAMING AND LEGAL NORMS

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### ABSTRACT

**Purpose:** The aim of the work is a comprehensive theoretical study of approaches to understanding the essence of the phenomenon of game in the social sciences, as well as determining the place and role of game norms as a special type of social regulators in the legal sphere. **Design / methodology / approach:** This research is a comprehensive analysis of the variety of approaches to understanding the phenomenon of game activity within the framework of philosophical, sociological, psychological and legal theories. The theory of game activity, being multifaceted and complex, contains various approaches to understanding the essence of the phenomenon under study. This work, based on the works of representatives of the social sciences, tries to investigate the relationship between game and its norms and rules with the sphere of law. **Findings:** As a result of the study, the main approaches to understanding the essence of the game as a social and cultural phenomenon have been analyzed, the characteristic features have been identified that make it possible to correlate the game activity with the law, the features characteristic of the rules of the game as an element of the system of social norms have been identified. It was concluded that the phenomenon of games in the social sciences is understood from completely different sides, while, as a rule, it seems almost impossible to find common features of the definition of the essence in a comprehensive study of these theories, which indicates the versatility of the phenomenon under study. In the issue of interaction between the rules of the game and legal norms, it was concluded that the rules of the game are primary in relation to the rule of law, endowed with a large number of common features. **Original / value:** The work is aimed at understanding the essence of the game as a social phenomenon, taking into account the variety of approaches to its understanding in various social sciences. An attempt is made to determine the place of game norms in the system of social regulators of social relations, through the formulation of characteristic features of the rules of the game, as well as factors that unite game and law as social phenomena.

**Keywords:** game, game norms, game rules, social norms, game theory, conventional game norms.

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## EVALUATION OF “SUNSET LEGISLATION” AS A MEANS OF DEREGULATION

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### ABSTRACT

**Purpose:** The purpose of the work is to define the content of “Sunset legislation”, its delineation from similar legal means and with taking into account foreign experience, elaboration of proposals for the development and adjustment of such a domestic institution. **Design / methodology / approach:** Deep understanding of the actual functionality “sunset legislation” is a complex and multifaceted practical and theoretical problem. This study is an attempt to identify real, not perceived, advantages and disadvantages of legislation with a limited period of validity and the possible scope of application of this legal means in domestic realities. **Findings:** As a result of the study, a conclusion was made about the economic efficiency of “sunset legislation” at the initial stage of its functioning and significance for maintaining the balance of legislative and executive powers in subsequent ones. In addition, the use of this legal tool increases legal certainty, has a beneficial effect on legislative stability, since it allows you to create a situation in which the termination or change of a normative act before the expiration of the deadline is exceptional. It was found that despite the significant similarity of "sunset legislation" with legal experiments and the principle of regularity of revision of legislation, they are largely different, primarily in their purpose. The author also comes to the conclusion that a simplified version of the “sunset legislation” has been implemented in Russia into one area of public relations, for which this legal remedy has not yet exhausted its potential. **Original / value:** The work is aimed at optimizing foreign ideas regarding a long-standing legal remedy - legislation with a limited duration - for Russian legal theory and practice insofar as its meaning and purpose is differently understood in different ways in legal discussion.

**Keywords:** deregulation mechanism, legal means of deregulation, “sunset legislation”, legislation with a limited duration, legal experiment, the principle of regularity of legislative revisions.

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## STRATEGIC TRENDS THAT DETERMINE THE ACTUALIZATION OF MARKETING ELEMENTS OF PERSONNEL IN THE FIELD OF AGROTOURISM IN RUSSIA DURING THE CORONACRISIS

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### ABSTRACT

The purpose of the article is to study, generalize and analyze current trends and prospects for the development of agrotourism in Russia with the help of personnel marketing elements. The article determines that a significant constraint on the development of the sub-sector is the imperfection of the regulatory framework and the vagueness of direct state support; legislation in the field of agrotourism is only being formed, existing assistance measures do not meet the request of society. The prospects of agrotourism are connected with the process of forming an institutional environment and developing tools for targeted state support. Results: a new impulse to realize the potential of agrotourism is associated with the coronavirus pandemic and the demand for domestic travel. As conclusions, the necessity of improving the system of state regulation and support for the development of rural tourism is established; trends that will contribute to the development of rural tourism in the conditions of the coronavirus pandemic, as well as options for the development of tourism in rural areas are highlighted; the main stages are highlighted and the mechanisms for the development of rural tourism in the region are described, which are based on the joint active work of entrepreneurs, the state and non-profit organizations; the main measures that contribute to the realization of the potential of agrotourism as a promising direction of sustainable development through the prism of personnel marketing elements are identified. © 2021 EA.

**Keywords:** village tourism, farm tourism, agrotourism, rural areas, rural economy, personnel marketing.

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## FORMALIZATION OF THE MARKETING CONTOUR HR-POLICIES IN THE FIELD OF AGROTOURISM IN RUSSIA AS A CONDITION FOR ITS BALANCED DEVELOPMENT

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### ABSTRACT

The purpose of the study is to formalize the marketing contour of the HR policy of the agrotourism sphere in Russia. The article analyzes the current state of the agrotourism market in Russia. The importance of the role of marketing communications in the development of rural tourism is considered. The main channels of marketing communications in the field of agrotourism are analyzed, the model of a complex of marketing communications focused on promoting the product of agrotourism in the Russian Federation is described. The factors hindering the development of agrotourism in Russia, as well as the system of organization of modern rural tourism are studied. The importance and significance of the process of promoting agrotouristic services is noted, a complex of modern marketing communications with agrotourists is given; Internet communications are an effective tool for promoting agrotourism objects, but for the optimal choice of the promotion concept, it is necessary to determine the portrait of a potential agrotourist. For the long-term development of agrotourism in Russia, it is necessary to develop state and regional programs to support agribusiness, increase the number of services provided, improve the territories and preserve the rich resource potential of the regions of Russia. It is noted that the contribution to the achievement of goals and the quality of services provided in the agro-tourism sector largely depends on the effectiveness of personnel selection.

**Keywords:** agrotourism, tourism industry, HR technologies, infrastructure, tourism management, marketing events.

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## SCREENING OF PLANT-DERIVED EXTRACTS AGAINST DNASE PRODUCTION OF *STAPHYLOCOCCUS AUREUS* 1582

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### ABSTRACT

The pursuit for the inhibition of quorum sensing (QS) systems with the use of plants is a developing approach intended at developing natural products to reduce or eradicate the making of virulence factors by pathogenic and multidrug-resistant bacteria. QSI proposed an innovative perception on the application of pure or natural compounds as beneficial agents with the benefit of dropping risks of resistance growth. The ethnobotanicals from the Igorot community of Barangay Imugan, Sta. Fe, Nueva Vizcaya Philippines, was tested for its quorum sensing inhibition activity against *Staphylococcus aureus* PNCM 1582 through the DNase assay after the antibacterial testing. These were *Bidens pilosa*, *Cestrum nocturnum*, *Sarcandra glabra*, *Pittosporum pentandrum*, *Oreocnide trinervis*, *Derris elliptica*, *Alstonia scholaris*, *Ageratina adenophora*, *Ayapana triplinervis*, and Lipang Daga (no known scientific name). Extraction was done using 95% n-hexane. All ethnobotanicals extract did not show antibacterial activity and no inhibition of DNase production. However, all plant extracts have the potential to combat other virulence factors produced by some bacteria, which can possibly combat antimicrobial resistance. Further screenings on other virulence assays are recommended.

**Keywords:** DNase, quorum sensing inhibition, virulence, *Staphylococcus aureus*

## INTENSITY OF $^{137}\text{Cs}$ TRANSITION INTO NECTAR-POLLINATING PLANTS AND BEEKEEPING PRODUCTS DURING RECLAMATION OF RADIOACTIVELY CONTAMINATED SOILS

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### ABSTRACT

The article presents investigations of transition  $^{137}\text{Cs}$  to agricultural crops (sunflower) and beekeeping products (honey, bee pollen) for reclamation of radioactively contaminated soils. It is proved that the quality of beekeeping products depends from the ecological condition of nectar-pollinating lands. As a result of the 1986 accident at the Chernobyl nuclear power plant, nectar-pollinating lands were subjected to high man-caused impact, in particular, some areas of Polissya. It caused a certain accumulation of  $^{137}\text{Cs}$  and  $^{90}\text{Sr}$  in beekeeping products. The authors studied the effect of reclamation of contaminated soils, in particular, in the Narodyskyi district of Zhytomyr region of Ukraine with  $^{137}\text{Cs}$  up to  $5 \text{ Ci/m}^2$  with different acidity on the intensity of accumulation of this radionuclide in honey and bee pollen produced by bees from nectar and sunflower pollen. It was found that the specific activity of  $^{137}\text{Cs}$  in honey and bee pollen produced by bees from nectar and pollen of sunflower grown on agricultural land with a content of this radionuclide in soils from 2824 Bq/kg to 2665 Bq/kg, not exceeding DR-2006 200 Bq/kg. Reclamation of radioactively contaminated soils with hydrolytic acidity from 1.6 mg to 2.4 mg-eq/100 g of soil, in particular, the application of defecation mud in them at a rate of 4 t/ha to 6 t/ha reduced the specific activity and accumulation coefficient of  $^{137}\text{Cs}$  in vegetative mass of sunflower, honey and bee pollen, made by bees from nectar and pollen of this plant.

**Keywords:** sunflower, soil, honey, bee pollination, vegetative mass, nectar, pollen, specific activity of  $^{137}\text{Cs}$ .

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## MYCOCHEMICAL SCREENING, PROXIMATE ANALYSIS AND ANTIMICROBIAL ACTIVITY OF *Pleurotus pulmonarius* (Fr.) Quel

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### ABSTRACT

Mushroom had long been used for medical and food purposes. It is now recognized due to its contribution of the beneficial health effects to humans, in the form of vitamins, minerals, food and drugs, and medicines. This study was conducted to screen *Pleurotus pulmonarius* (Fr.) Quel for the presence of different mycochemicals: determine its nutritional content based and proximate analysis, and evaluate its antimicrobial activity. For the mycochemical screening, aqueous extract of the mushroom was used to determine the presence of alkaloids, cardiac glycosides, flavonoids, saponins, steroids, tannins and terpenoids. To determine the nutritional content, dried fruiting bodies of *P. pulmonarius* were analyzed based on the guidelines of the Association of Official Analytical Chemist (AOAC, 2002). Crude protein, crude carbohydrate, crude fat, crude fiber, ash and moisture content were evaluated. Mycelial disc of *P. pulmonarius* were used to evaluate its antimicrobial property against three microbial pathogens: *Escherichia coli*, *Staphylococcus aureus* and *Candida albicans*. Mycochemical screening results showed that aqueous extract of *P. pulmonarius* contains alkaloids, saponins, cardiac glycosides and terpenoids. However, tannins, steroids and flavonoids were not detected in the extract. The immobilized mycelial disc of *P. pulmonarius* has no antimicrobial property against the three microbial pathogens (*E. coli*, *S. aureus* and *C. albicans*). Results from proximate analysis showed that *P. pulmonarius* contains different amounts of crude protein, crude carbohydrates, crude fat, crude fiber, ash and moisture showing that *P. pulmonarius* is a nutritious mushroom that can be beneficial to humankind.

**Keywords:** *Pleurotus pulmonarius*, Mycelial disc, Mycochemical, Proximate Analysis, Antimicrobial

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## SOIL AND WATER MICROBIOTA AS BIOINDICATORS FOR THE ASSESSMENT ECOLOGICAL STATUS OF ECOSYSTEMS

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### ABSTRACT

The article presents the results of monitoring the area adjacent to the Carpathian Biosphere Reserve for investigation of unauthorized landfills and examines the ecological status of these ecosystems. Four unauthorized landfills for solid waste in Pidgirna, Stanislav, Steryshory, and Feresok tracts with an area of 0.15 to 1.5 ha with a waste accumulation period of 12-22 years and different morphological composition were identified, which had a significant impact on the soil and water microbiota. Bioindication methods have shown changes in the microbial communities of soil and water under the direct influence of unauthorized landfills. Increased the number of organotrophic bacteria and micromycetes and decreased content of nitrogen-fixing microorganisms. The highest number of bacteria using mineral forms of nitrogen (25.36–28.61 million CFU/g. d. soil) and micromycetes (51.8–76.8 thousand CFU/g. d. soil) was in the soils of Pidgirna and Feresok with an advantage of 1.5-1.7 times and 2.5-3.8 times compared to the soil of the protected area. Results of the analysis of water microbiome showed that it is a sensitive indicator. The high number of anaerobic bacteria of the genus *Clostridium* was in the tract Feresok, so above the flow of the study area 3.69 thousand CFU /ml of water, in a place close to the landfill 6.22 thousand CFU/ml of water, below the flow of 9.35 thousand CFU/ml of water. Gram-positive bacteria of the genus *Staphylococcus* varied from the most polluted area in Feresok to the least polluted in Steryshory: 3.89 thousand CFU/ml of water, downstream 7.35 thousand CFU /ml of water. A close relationship was established between the duration of solid waste storage at a certain site and the level of soil phytotoxicity ( $r = 0.92$ ). In the soil of landfills in Pidgirna, Steryshory, and Feresok tracts, the phytotoxicity index is significant (over 50%), which indicates a high level of soil ecosystem pollution and increased environmental risks in the area of unauthorized accumulation of solid waste.

**Key words:** soil, water, bioindication, ecosystem, microorganisms, landfills.