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RESPIREABLE PM LEVELS IN THE AMBIENT ATMOSPHERE OF JEDDAH CITY AND AROUND

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ABSTRACT

Environmental pollution especially air pollution is a growing problem related with very heavy vehicle traffic in the metropolitans, fuels usage for heating systems and power generation plants, and increasing industrial activities. Measurements of the air pollutants in the urban area are important due to environmental health related issue. Air pollution modelling approaches also are very complex process; many methods are mostly used for modelling the complicate and linear/non-linear application methods. In this study, modelling methods were discussed to explain the impact on air quality and pollution level in Jeddah city of Saudi Arabia. Environmental pollutants concentrations data of PM₁₀ were obtained for modelling of the air quality in the Jeddah ambient atmosphere. Using Air quality standards of Saudi Arabia was compared by considering the pollutants' concentration as independent variables. Different comparison factors were used for pollutant according to their importance and concentration in changing time periods. The success of modelling method was searched with checking data for different city region established by recent meteorology and environment to obtain the pollutants levels in Jeddah city centre. According to the resent investigations, fuzzy based ANFIS model has success as comprehensive instrument for estimation and point of view for the air quality and components.

Keywords: Air pollution; PM₁₀; Modelling, Air quality, Measurement, vehicles.

THE POTENTIALS FOR BIO WASTE MANAGEMENT IN MACEDONIA

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ABSTRACT

Waste management is still one of the biggest environmental problems in Macedonia. Within this framework, bio waste is an extremely serious problem. The developed system of bio waste management can substantially improve the protection of the environment. Macedonia as a candidate state for membership of the EU has an obligation to follow the Unions' standards and to limit the quantity of bio waste on the landfills. Besides of that, land filling of bio waste is almost the only solution. The situation is more alarming taking into consideration that from 54 landfills, there is only one, that meets some contemporary environmental standards. Although the bio waste significantly contributes in the total amount of waste, there are no any positive results in the modernization of bio waste treatment. There were realized some projects for composting, mainly supported by foreign donors, but shortly after the completion of the projects the composting has stopped. The commitment to the intensive treatment of bio waste, stipulated in the strategic documents and legislation remain unrealized. The main goal of this paper is to analyze and to research possibilities for development of bio waste management in Macedonia and through the SWOT analysis determines the obstacles and potentials for its development. The paper also makes efforts to stimulate further researches in this area and to give some recommendations for further activities.

Key words: Bio waste, management, improvement, analysis, potentials, treatment.

DISTRIBUTION OF HEAVY METALS IN STREAM SEDIMENTS IN MITROVICA REGION, KOSOVO

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ABSTRACT

Stream sediments are composite materials derived from the weathering and erosion of one or more sources upstream. Normally heavy metals are not harmful to our environment because they are only present in very small amounts. The environmental pollution concern rises when they show up in higher concentration due to natural mineralizing processes and/or human activities. The heavy metals threatening the ecosystem include arsenic (As), cadmium (Cd), mercury (Hg), lead (Pb), zinc (Zn), copper (Cu), selenium (Se), antimony (Sb), chromium (Cr). The investigated area is located in Mitrovica region, north Kosovo. The survey area was determined in the adjacent area of the known Pb – Zn – Ag polymetallic occurrences. In the study area, there are stream sediment geochemical data for 211 samples representing a total catchment area of around 400 km². The geochemical results were explored using a range of common statistical techniques including descriptive summary statistics, statistical distribution and correlation analysis for selected heavy metals. The comparison of the maximum values, arithmetic mean and median values with the Clarke values (average of the Earth crust) shows that the survey area is specialized for such elements as As, Cd, Hg, Pb, Zn, Cu, Se, Sb and Cr. The statistical distribution of some heavy metals is marked by some extremely high values on a background of the normal low concentrations. The strong Zn anomaly of the Trepca river is due to mainly anthropogenic contamination of the river with flotation remains and ore waste mixed with natural background input. Some of the other anomalies were caused by waste or loss from existing mines and ore processing industry.

Key words: stream sediment, heavy metals, statistical analysis, distribution

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ANOMALOUS DEEP WATERS GURGLING TO THE SURFACE AND IMPACTING SOILS IN THE VAL D'AGRI OIL FIELD, SOUTHERN ITALY

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ABSTRACT

This preliminary study documents the first occurrence in Southern Apennines of anomalous deep ground-water gurgling to the surface and impacting soils, that become infertile. 2 murky water pools (LaRossa waters) have appeared in 2011 in a bucolic farm area near Montemurro, north of the Pertusillo Lake, in the Val d'Agri oil field (Basilicata, Italy), 2,3 km from the Costa Molina 2 reinjection well. To determine their properties 13 water samples were analysed, including LaRossa waters and, for comparison, 5 spring waters of the Val d'Agri. Physico-chemical parameters of LaRossa waters resulted different, showing higher concentrations of salts, sodium, hydrocarbons, phenols and metals. The most abundant chemicals were: sodium, chlorides, bicarbonates, total hydrocarbons, phenols, aluminum, iron, barium, boron, strontium, lead, manganese, copper, zinc. LaRossa waters are turbid, rich of colloids and contain some gas; they are anoxic, with high temperature and intermittent flow rates at daily intervals, and cause soil degradation along their flow path. Physico-chemical characteristics of LaRossa waters are most similar to oil produced waters. A preliminary hypothesis indicates that a likely source of LaRossa waters is represented by leakage of the oil produced waters reinjected in the Costa Molina 2 well, probably due to problems of well integrity, with contamination of aquifers and toxic waters gurgling to the surface. A multidisciplinary study is needed in order to confirm this hypothesis.

Key words: anomalous, deep waters gurgling, surface, impacting soils, Val d'agri Southern Italy

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ECOSYSTEM AND INFECTION DISEASES

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ABSTRACT

The magnitude and direction of altered disease incidence due to ecosystem changes depend on the particular ecosystems, type of land use change, disease-specific transmission dynamics, and the susceptibility of human populations. Intact ecosystems play an important role in regulating the transmission of many infectious diseases. The reasons for the emergence or reemergence of some diseases are unknown, but the main biological mechanisms that have altered the incidence of many infectious diseases include altered habitat, leading to changes in the number of vector breeding sites or reservoir host distribution; niche invasions or interspecies host transfers; changes in biodiversity including loss of predator species and changes in host population density, human-induced genetic changes of disease vectors or pathogens such as mosquito resistance to pesticides or the emergence of antibiotic-resistant bacteria and environmental contamination of infectious disease agents. Human contact with natural ecosystems containing foci of infections increases the risk of human infections. Contact zones between systems are frequently sites for the transfer of pathogens and vectors, whenever indirect transmission occurs, to susceptible human populations such as urban-forest borders, malaria and yellow fever, and agricultural-forest boundaries, hemorrhagic fevers such as Congo-Crimean and hantavirus. The different types and subtypes of systems, natural, cultivated, and urban may contain a unique set of infectious diseases such as kala-azar or plague in drylands, dengue fever in urban systems, and cutaneous leishmaniasis in forest systems, but some major diseases are ubiquitous, occurring across many ecosystems such as malaria and yellow fever.

Keywords: ecosystem, biodiversity, microorganism, infectious disease

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TOURISM SECTOR VALUATION IN THE EXPLOITATION OF THE NATIONAL PARK “DAJT”

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ABSTRACT

The Protected Areas in the Republic of Albania have a very big exploitation potential, this is because of the diversity aspect they have biologically and also the possibility to generate enough financial benefits to fulfill the zone needs and why not to contribute to the country budget. Another important aspect of the exploitation of these zones is the one of tourism in the protected area, as one of the priority prolific sector at the moment. The human being has always tented to travel and discover exotic and virgin places and catching the satisfaction of visiting these places and the possibilities they offer. We asked some visitors to understand the real situation of one of the protected area and the possibility to improve it in the future. We decided to do the interviews in the Dajti National Park with around 100 visitors to see the result and make the analysis of the problem.

Keywords: protected area, National Park, tourism, recreation, satisfaction

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NATURAL MONUMENTS OF TOMORRICA REGION IN ALBANIA

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ABSTRACT

This article provides a detailed analysis of the geomorphologic features of this region and its natural monuments. Considering the importance of the preservation and evaluation of the natural heritage, this article treats the natural conditions of this region, in the function of the natural monuments and the values that they have. Firstly, there is determined the geographical position of this region, then there is provided an evaluation of the nature considering: geology, geological structures, climate, hydrograph and vegetation. The morphological analysis of the landscape, occupies an important place, accompanied by geomorphologic profiles. Meanwhile the second part of this article treats the natural monuments of this region. There is made a classification of the natural monuments in: geo monuments, bio monuments and hydro monuments. It treats the monuments declared by the government, and then a number of other monuments are proposed reflecting all their characteristics. All these natural objects are accompanied by photos and sketches. They display their natural, touristic and environmental values. In the end there are given conclusions and recommendations.

Keywords: natural conditions, monuments, hydro monuments, bio monuments

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EVALUATING THE METAL MOBILITY FROM OPEN-DUMPED MINING WASTES IN KOSOVA: A COMPARISON OF THREE-STAGE BCR SEQUENTIAL EXTRACTION AND TOXICITY CHARACTERISTIC LEACHING TESTS

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ABSTRACT

Worldwide, mining is an important segment of industrial development that had and still has serious environmental impacts. Trepça was the largest metallurgic and mining complex in Europe with a long history in silver, lead and zinc metallurgy. Because of the inefficiency of the past mineral processing technologies huge amount of waste materials sorted in the Mitrovica Industrial Park, which contain considerable amounts of zinc and other metal such as lead, cadmium, nickel, copper, other precious metals remain. The weathering and acid nature of mining waste are favourable conditions in which metal ions that are present might become more soluble and mobile to the environment. In this work, the modified three-stage sequential extraction procedure Community Bureau of Reference (BCR) was applied for the fractionation of Zn, Pb, Ni, Cd, Cu and As in mining wastes from old Pb–Zn mining areas located in Mitrovica Industrial Park (Kosova). Analyses of the extracts were performed by inductively coupled plasma atomic emission spectrometry. The procedure was evaluated using a certified reference material, BCR-701. By comparing the obtained results of three BCR fractions and leaching tests (DIN 38414-S4 and Synthetic Precipitation Leaching Procedure (SPLP) Method 1312:1994) we can conclude that Zn is very distributed among all fractions, while Cd possesses the highest potential ecological risk factor. Therefore, the sequential extraction and leaching tests proved to be useful methods in providing information on mobility of metals in mining open-dumped sites in Kosova.

Keywords: mining waste, metal mobility; modified BCR sequential extraction; toxicity characteristic leaching procedure; inductively coupled plasma atomic emission spectrometry.

MICROBIOLOGICAL SAFETY AND QUALITY OF SOME CHEWING GUMS DISTRIBUTED IN ALBANIAN MARKET

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ABSTRACT

Chewing gums and other substances with similar ingredients are used since early by the consumers in all the world. Modern forms are part of nowadays consume in Albania as well. Chewing gums help to have a fresh breath, to remove food particles and different microorganisms which cause unpleasant breath and teeth damages. Sugar-free gums has been shown to reduce cavities and plaque. The consumers are not so careful with their use, they keep them with themselves opened, in their pockets or bags, in homes, or use them after a long period of time since purchase. They can be found everywhere in small markets, even outdoors ones with the risk to transmit the environmental contamination to these products. The use of chewing gums is a problem in schools because children and students often dispose of them inappropriately. A public education is needed to encourage responsible use and disposal as well. They are distributed in the markets respecting all the rules of their packaging, preservation and labeling; so the risk of their use is related principally with the consumer behaviors. The attention related to the microbiological safety and quality of these products is the objective of this study. Some known brands have been microbiologically analyzed in order to complete a data base related with the presence of different microbial strains explored from products and their packaging. The determination of the total number of the presented microbial strains was included in the plan of the experimental work. Discovered environmental contaminants were taxonomically studied and *Bacillus megatherium*, *Chrysobacterium spp.*, *Aspergillus spp.* and some *Penicillium* strains were observed. Synthetic and natural antimicrobials were used to reduce their presence and to study their behavior.

Key words: chewing gum, microbial contamination, total charge of microorganisms, *Chrysobacterium spp.*, *Aspergillus spp.*, *Penicillium spp.*

EPIDEMIOLOGY OF OUTPATIENTS WITH COPD

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ABSTRACT

The objective of the study was to describe the epidemiology and assess the clinical features of outpatients with chronic obstructive pulmonary disease (COPD). A range of variables such as sociodemographic data, smoking status, and severity, symptoms, treatment, were collected using a structured questionnaire. 224 consecutive outpatients presenting at Dispensary of Tirana district over the two year period January 2011-January 2013 were included in the study. Seventy four percent of patients were men and 26% women (fig 1). The mean age of patients was 69 (11.4) years. Fifty seven percent of patients were current smokers and smoked a mean of 20 (5.7) cigarettes daily. COPD severity was mild in 24% of patients, moderate in 47% and severe in 29%. Severe disease was more common among men (42%) compared to women (18%) ($p < 0.01$). Twelve percent of patients with very severe COPD smoked more than 20 cigarettes a day. The cough was the main reason for consultation in 81.2% of patients followed by expectoration (70.5%) and dyspnoea (63.1%). The mean frequency of visits was every 2.9 (± 2.7) months. A total of 39.6% had visited an emergency care unit while 24.7% required hospitalization at least once, during the study period. The most commonly used drugs were long-acting b2-agonists (81%) and inhaled steroids (68%). Smoking cessation can significantly reduce COPD occurrence and improve the quality of life of the patients.

Keywords: chronic obstructive pulmonary disease, epidemiology, risk factors

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VASCULAR PLANT DIVERSITY AND CLIMATE CHANGE IN THE ALPINE ZONE OF THE CENTRAL GREATER CAUCASUS

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ABSTRACT

Mountain regions are hotspots of biodiversity and contain many endemic vascular species. The alpine vegetation is generally considered to be particularly vulnerable to climate change and can be used as a sensitive “ecological indicator” for climate change effects. We present recent (2001 and 2008) changes in vascular plant composition observed in a monitoring network across GLORIA network summits in the Central Greater Caucasus. During monitoring period average soil temperature, June mean of daily minimum T (°C) and GDD did not significantly increase. The Thermophilization indicator (D) was negative. The observed changes in species richness and cover are not generated only by the changes of these climatic variables.

Keywords: The Central Greater Caucasus, alpine plant diversity, global climate change, GLORIA-Europe, species richness, species cover.

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THE NURSING STAFF METHODS OF MANAGING HOSPITAL WASTE OF VLORA REGIONAL HOSPITAL AND THE ENVIRONMENTAL POLLUTION

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ABSTRACT

Health institutions are a tool of health defence, correction of patients and preservation of human life. These institutions also produce hospital waste which may have the risk of infection spreading, the risk of exposure from radiation and chemical elements, and the risk of causing various trauma. ^[1]. Purpose: Evaluation of the way of management of hospital waste, from Vlora Regional Hospital nursing staff, and the assesment of hospital waste on the environment. This is a descriptive analytical study. The area studied is the Regional Vlora Hospital. The number of nursing staff participating in this study was N= 320. Data processing of this study was done by SPSS 17.0, ANOVA and Post Hoc Test (LSD) statistical method. In this study we noticed that 24% of nursing staff didn't throw the general hospital waste in appropriate containers. As the result, this behavior may also cause environmental pollution. 35.5% of nursing staff participating in this study didn't throw anatomical human hospital waste in the appropriate container. Based on this study, we can conclude that a considerable part of nursing staff didn't throw hospital waste in adequate container. As a result a phenomen like this is a potential source for environmental pollution. This will be more evident during the definitive moments of compensation of hospital waste. For example, waste that are designated to be discarded in the crematorium are mostly thrown in container of common urban waste and this will bring the environmental pollution.

Keywords: Environment, pollution, hospital waste, nursing staff.

PROTECTED AREAS MANAGEMENT EFFECTIVENESS IN ALBANIA IN THE CONTEXT OF AICHI 2020 TARGETS

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ABSTRACT

Aichi biodiversity targets approved by CBD COP 10 in 2010 aim to ensure biodiversity conservation by 2020, while CoP7/SBSTTA recommended developing indicators to measure the progress made. CBD programme of Work on Protected Areas sets the target to have frameworks for monitoring, evaluating and reporting PAs management effectiveness at sites, national and regional systems, and trans-boundary protected area levels adopted and implemented by Parties. Evaluation of the management effectiveness of at least 30 % of each Party's national protected area systems was required by 2010. The PoW on Protected Areas aligned with NBSAP focuses on their extension and management strengthening as high priority objectives for the country. Protected Areas in Albania actually cover 16 % of the territory. The issue of management effectiveness of existing PAs has not received enough attention. This paper presents an effort in this respect on the assessment of most important areas: National Parks, Managed Nature Reserves and Protected Landscapes. Analysis of main components of PAs management effectiveness using RAPPAM methodology, show the Planning component in average values to have the best results with over 50 %, followed by Processes and Outputs with around 42 %, with the weakest value belonging to Inputs with only 30 % in mean values. From the summary of management effectiveness point of view only National Parks score above 200, showing a great need for improvement in this respect. The strongest points belong to legal framework for designation and some political support with the weakest ones being the financial and human resources.

Key words: protected areas, management effectiveness, targets, Albania

SOIL SEEDBANK AND VEGETATION REGENERATION POTENTIAL IN MONTANE GRAZING LAND OF EASTERN TIGRAY, ETHIOPIA

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ABSTRACT

Restoration of vegetation is highly dependent on the banked seed in the soil. This study was conducted in Kilde - Awelaelo eastern Tigray, Ethiopia. The study aimed at assessing soil seed bank flora, and determining vegetation regeneration potential. A total of 45 quadrats measuring 20m×20m (400m²) were laid out in 15 sample sites from three corresponding land use types (i.e. ten years enclosure, five years enclosure and open grazing land). From each land use type five sites having three quadrats were investigate. Each quadrat was laid out at an interval of 400m in five parallel transects each 200m apart from other, to collect data on soil seed bank , five randomly located plot 1m² area each, was selected and marked, within each 400m² sample quadrat of sample sites located along the main transect. At the center of each plot, three sub plots, 15cmX15cm, were marked in a triangular shape. Soil samples were removed from three separate soil layers, each three centimeters thick (0-3cm, 3-6cm and 6-9cm) and was germinated in green house. The study revealed that, a total of 1949 seedlings belonging to 65 species and 29 families germinated in the green house experiment. The forbs comprised 60.66%, grasses 16.66%, legumes 13.11%, trees/shrubs 4.80%, 3.20% climbers and 1.60% sedge of the total germinated plant species. There was significant (P<0.05) difference in seedling density and species composition along land use type and layers but species composition did not significantly vary in layer3 (6-9cm). The seedling density in the land use type and along depth ranged from 275-876 and 49-333 seedling m⁻², respectively. In conclusion the present study discovered that, the two enclosure sampled sites part of the montane grazing land had shown relatively highest level of soil seed bank flora. As a result, expansions of enclosure with proper management is instrumental practice for restoration of degraded grazing lands.

Key words: Seedbank, seedling density, species composition

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PERCEPTION OF DIRECT SEEDING (NO TILLAGE-ZERO TILLAGE) METHOD IN WHEAT PRODUCTION BY THE FARMERS IN TURKEY: KONYA PROVINCE CASE

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ABSTRACT

This study aimed to determine the usage levels of direct tillage and traditional methods and the farmers' attitudes in Konya province-Turkey. The study was formed by the data gathered from Kulu, Cihanbeyli, Altinekin, Sarayonu and Cumra districts representing rainfed and irrigated wheat production conditions in Konya province via face to face interview method. The questionnaire forms was fulfilled in March 2014. According to the survey results, direct seeding method has been applied in only 2 % of wheat production area in Konya province. As 62.50% of the farmers engaged with direct seeding methods in their own wheat production area remarked that they saved fuel on their production input, 25% and 12.50% of them indicated that they received low yield and suffered from weed problem in their wheat production area respectively. In the study, 43% of the farmers said that they hadn't had any information on the direct seeding method, but 57% of the farmers indicated that they were familiar to the method. The main reasons of the farmers, who even know the direct seeding method but haven't been used it before, on why they don't prefer the method on their production area were shown as low yield in the productions (19.18%), not enough demonstration activities being done for direct seeding (13.70%), low level adoption of the method among the farmers until now (12.30%), believes on the necessity of more than one tillage for the production (12.30%), and perception on that the method leads to more weeding and plant disease problem in the production (10.95%).

Keywords: Direct seeding (zero tillage-no tillage), perception and attitudes, wheat, Konya-Turkey. Perception of Direct Seeding (No Tillage-Zero Tillage) Method in Wheat Production by the Farmers in Turkey: Konya Province Case

MICROPROPAGATION OF WHEAT (*TRITICUM AESTIVUM* L.) USING MATURE ZYGOTIC EMBRYOS AS PRIMARY EXPLANTS

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ABSTRACT

Wheat is one of the most important species of cereals used for food and feed as well as in the bioethanol industry. As a result of this fact, many studies are carrying out in order to increase the productivity of this species, particularly important from the economic point of view. The present study was undertaken to evaluate the most suitable concentration of mineral salts (MS, WPM and Gamborg basal nutrient media) and growth regulators i.e., 2,4-D, NAA, BAP and Kin for proliferation and regeneration of wheat (*Triticum aestivum* L) using mature zygotic embryos as primary explants. MS media resulted to be the most optimal basal nutrient media for embryos proliferation. There were significant differences among different PGRs concentrations in survival percentages and growth rates of zygotic embryos. The best response during proliferation stage for coleoptiles length was obtained on MS I media (NAA 0.1 mg l⁻¹ and BAP 1.0 mg l⁻¹), whereas for roots length was obtained on MS II media (NAA 0.5 mg l⁻¹ and BAP 0.5 mg l⁻¹). During plantlets micropropagation, MS media supplemented with BAP 3 mg l⁻¹ resulted more effective in comparison when using Kin 0.5 mg l⁻¹. This protocol can effectively be used for *in vitro* propagation of wheat.

Keywords: wheat, micropropagation, zygotic embryo, nutrient medium, phytohormones

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IDENTIFYING CLAY SWELLING PATTERN

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ABSTRACT

This study testifies mathematically the dependance of swelling on time for the clay sample taken at a gas well in Divjaka at the depth of 3080 m as well as the Perrenjas clay. Clay swelling at water contact is a parameter which is very important in the areas where clay is used. Swelling is measured under the impact of various solutions with a special apparatus. In order to give the practical value of clay swelling pattern, clay swelling size measurements that we have defined are calculated mathematically to determine which pattern approximates factual swelling. The results showed that the equation is linear.

Keywords: swelling, clay, washer fluids.

CHEMICAL COMPOSITION OF ALBANIAN *VITEX AGNUS CASTUS* L. LEAVES ESSENTIAL OILS

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ABSTRACT

Vitex agnus-castus L. (Verbenaceae) is a small tree or deciduous shrub, native to the Mediterranean region and Asia. It is known in Albania as “konopicë” and grows wild in the western lowland. The aim of the present study was the determination of the chemical composition of *Vitex agnus-castus* leaves essential oils growing wild in two different zones of Albania. The GC and GC/MS analyses of the leaves oils revealed that the major constituents identified were 1,8 cineole (15.97 % -31.8 %), sabinene (16.98 % - 18.65 %), β -caryophyllene (5.53 % -20.33 %), α -pinene (3.42% -8.01%), β -farnesene (1.12 % - 3.07 %), α -terpinyl acetate (1.26 % -2.73%) ect. The monoterpene hydrocarbons ranged from 26.6 % (Tepelena) to 33.85% (Divjaka). The oxygenated monoterpenes constituted 23.29% (Divjaka) and 46.13 % (Tepelena) of total oils. Percentage composition of total sesquiterpenes in the oils were 15.66% and 25.73%, respectively in Tepelena and Divjaka and the total diterpenes from 3.93 % (Tepelena) to 7.02 % (Divjaka).The examination of the data reveals that *Agnus Castus* L. leaves essential oils growing wild in two different areas of Albania has some differences in their chemical composition. The oxygenated monoterpenes is the major group of components of the leaves essential from Tepelena, with the main constituent 1,8-cineole (31.84%), while in Divjaka zone the major groups are the monoterpenes and the total sesquiterpenes, with the main constituent β -caryophyllene (20.33%).

Key words: *Vitex agnus-castus*, verbenaceae, sabinene, 1,8-cineole, β -pinene, β -farnesene and β -caryophyllene

EXTRACTION OF CAROTENOIDS FROM TOMATO BY NEAR CRITICAL LIQUID CO₂

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ABSTRACT

Carotenoids such as lycopene and β -carotene are gaining interest in the food industry due to their nutritional and antioxidant properties. In this study we investigated the use of near critical liquid CO₂, as a solvent for the extraction of lycopene and β -carotene from tomato pulp and tomato skin. Two different procedures were tested: the extraction of tomato pulp and tomato skin via continuous solvent recycling and the extraction by a Soxhlet-type process via periodic solvent recycling. The extraction was carried out in a Jennings-type autoclave. The kinetics of the extraction, and the lycopene and β -carotene content of the liquid CO₂ extracts were determined for both extraction procedures. The results for the content of lycopene and β -carotene in liquid CO₂ tomato extracts were compared to those obtained by Soxhlet extraction of tomato pulp using as solvents *n*-hexane and dichloromethane. HPLC-DAD was used for the quantification of the lycopene and β -carotene in the extracts as described by Vasopollo. Extraction by Soxhlet-type periodic recycling of liquid CO₂ is more efficient (9.2-17.31 μ g lycopene/g tomato skin and 9.33-20.67 μ g β -carotene /g tomato pulp) than continuous recycling of liquid CO₂ (0.087-2.53 μ g lycopene/g tomato and 0.94-8.89 μ g β -carotene /g tomato). The highest β -carotene content was found in tomato pulp extracted with liquid carbon CO₂ and in the *n*-hexane extracts of tomato skin (1370 μ g lycopene/g tomato and 78 μ g β -carotene /g tomato).

Keywords: tomato, lycopene, β -carotene, near critical liquid CO₂.

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EPIDEMIOLOGICAL SITUATION OF BRUCELAR INFECTION IN THE DISTRICT OF GJIROKASTRA

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ABSTRACT

The majority part of Gjirokastra is a rural territory where cloven hoof animals grow . This phenomenon is favored by the mountainous terrain of this area . For the first time Brucellosis is found in the village Poliçan with a considerable spread among residents of the area, during the years 1941-1944. Our study is extended between January 2005 and January 2006. There were 1224 individuals presented for examination, of whom 401 resulted positive for infection by *Brucella melitensis* . 187 people affected from this infection were males and 214 females . This infection is more common in the age of 25-60 years old (273 individuals). The period of the year with the highest number of infections is June with 80 infected people. The most usual test in ours laboratories is the WRIGHT TEST with the serum agglutination . All the results of this study are obtained by the WRIGHT TEST . About 75 % of infective diseases in humans are caused from animals . The most common zoonotic disease in this region is brucellosis , therefore the study of the dynamics of brucelar infection in humans and the measures to prevent it, are needed.

Key words: *Brucella melitensis*, zoonotic disease, agglutination, Wright test.

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IMPACT OF ENERGY EFFICIENCY MEASUREMENTS ON ENVIRONMENT

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ABSTRACT

Energy security is a critical consideration for Albania because the electricity production relies on hydropower 100% on 2013. While renewable energy resources like hydropower play a fundamental role in moving the world towards a low-carbon economy, these are vulnerable to changing climatic conditions. Annual precipitation variability already affects Albania's energy production to a considerable extent and climate change may bring further challenges. Energy efficiency and renewable energy deployment have the potential to bring benefits to consumers, reduce emissions and makes an immediate contribution to security of supply. The paper aims to show that the reactive power compensation and use of variable speed drives to control speed bring improvements in energy efficiency of electric drives. The energy efficiency of electric drives has influence on their work, consumption and paying of electric energy, reduction of green gasses, the working life etc. The technical results show that the additional investments to increase the power factor until 0.9 and efficiency of electric drives will bring the reduction of energy consumption from 20% up to 37% and reduction of CO₂ emission are expected. The investment payback time will be up to 3 years which do it very profitable. The findings of the study are in accordance with the policy of the Albanian government which identifies the energy savings as the most cost-effective way to increase security of supply with electrical energy and to reduce import dependency. The study is based on European Directive 2006/32/EC adopted in National Energy Efficiency Action Plan for 2011-2018.

Keywords: energy saving, compensation, reactive power, power factor

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BRUCELLOSIS, THE MOST COMMON ZONOTIC DISEASE IN SOUTHERN ALBANIA

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ABSTRACT

Brucellosis is a contagious disease caused by microorganisms of *Brucella gender* that are transmitted from infected animals to human. The way of transmission is by direct contact with secretions or tissues of infected animals, or indirectly by consuming unpasteurized products of these animals. Responsible for causing disease in humans is *Brucella melitensis*, coccobacillus motionless, gram negative. Laboratory diagnosis in Gjirokastra district is determined by the agglutination reaction (test WRIGHT), which gives positive results at the beginning of the disease (in the days 3-5). The data were collected during the period January 2004 - January 2005. 1423 people were presented for screening, of whom 373 resulted positive for infection by *Brucella melitensis*. The infected individuals were 202 males and 171 females. The highest frequency of infection was in the active part of population, 25-60 years old (226 individuals). Month of the year with the highest number of people infected is July (58 individuals). Brucellosis takes the first place of the zoonotic diseases in Gjirokastra districts, so is necessary a close collaboration between veterinary and health institutions. Improving sanitary conditions of labor in rural areas, controls continued eradication of infection in animals, enhance care during the cooking of animal origin food products.

Key words: *Brucella gender*, way of transmission, laboratory diagnosis agglutination reaction

EVALUATION OF SNOWFALL AS A COMPONENT OF CLIMATE IN THE BALKAN REGION: A CASE STUDY METEOROLOGICAL STATIONS IN ALBANIA

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ABSTRACT

Snowfall is an important indicator of the continental climate zones. Studies on snow drifts as well as snow observations measured simultaneously in open and closed areas are rare in the Balkans region and elsewhere. An assessment of snowfall distribution as a climatic element is presented for the Balkans region through monitoring and evaluating snowfall data for three meteorological stations in Albania. Data were collected over a period of 30 years. Snow-related parameters measured included, snowfall, the time of precipitation, presence of snow cover, and the number of snow days, monthly as well as annually. Snowfall was measured in open and closed areas. The method of evaluation was that of statistical analysis, graphics and cartography. Stations included in the study: Bilisht, Boge, Bulqize, all have territorial distribution in Albania. Results showed that the Alpine station situated in the North had highest snowfall accumulation, above 500 cm per year on average. In addition, open-area snowfall was significantly larger than that over closed area at two stations whereas this difference was insignificant at one station, perhaps due to differences in vegetation type and coverage.

Key words: evaluation, climatic element, snow fall, meteorological station, region

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THE GEOLOGICAL AND PALEONTOLOGICAL NATURAL MONUMENTS – HABITATS FOR BIODIVERSITY CONSERVATION

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ABSTRACT

The study is focused on evaluating the flora and fauna diversity potential of ten Geological and Paleontological Natural Monuments, located in the North of the Republic of Moldova, and highlighting the rare species with national, regional and international protected status. On the basis of the obtained results it was established that there is found a rich diversity of flora and fauna in the studied objects. The investigated ecosystems serve as new habitats, unknown previously, for some rare species. The research results serve as a scientific argument to protect landscapes as a whole, including the geological and paleontological elements as well as the flora and fauna ones, a requirement set down by the Rio Convention, 1992.

Keywords: biological diversity, rare species, protection status, news habitats, Geological and Paleontological Natural Monuments.

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MANAGING HEALTH AND SAFETY IN SWIMMING POOLS

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ABSTRACT

Managing the water in your swimming pool is vital to keeping the pool in good working condition. Water that becomes dirty or stagnant can be unhealthy to swim in, and in some cases, the pool needs to be drained, cleaned and refilled. The aim of this study has been to monitor the microbiological pollution in the pools. Six pools were selected and monitored twice a month over a period, from May 2013 to September 2013. The sites were located near the Tirana and Durres regions, and at the same time near the wells which were supplying the pools with water as well as some villages' wells around. We have analyzed 260 water samples from the pools. From our samples, most of them contained the general micro flora up to the reference value and most of them had the *Total coliform* up to the allowed norms. The fecal indicators are higher than the referenced value. It's important to evaluate the indicators of sewage such as *Escherichia coli* and *Streptococcus fecal*, which in our study are in high value. Coliform bacteria is made up of organisms that are present in the environment and in the faces of the warm-blooded animals and humans. Out of 826 cases diagnosed by appropriate methods, 72 cases were found with fungi and Chlamydia. In addition, Staphylococcus was found in 39% of the cases.

Key words: pollution, microbiological indicators, helminthes, swimming pool water, microorganisms.

EFFECT OF TIME ON HISTAMINE FORMATION IN *Sardine Pilchardus* STORED IN COLD TEMPERATURE

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ABSTRACT

Histamine levels in fresh sardines vary from one country to another. In this study we evaluated the histamine content in Albania fresh sardines (*S. Pilchards*) caught immediately in coastal area and after it have been kept in chilled temperature in market places. Fish samples were taken in two coast points and in some important markets. The samples were carried immediately to the laboratory. A portion of the dorsal muscle from each fish was soon analyzed; while two other portions were examined after storage at 4°C for 24h and 72h, respectively. Samples were analyzed for the presence and the quality of the histamine by a simple and rapid colorimetric method for the quantification of histamine in fish ELISA. Histamine level in fresh samples was found to be <20 mg/100g, and in the market places around 22mg/100g which was much above the defect action level (5mg/100g) given by FDA indicating potential risk for histamine poisoning. The results should represent the basis for the introducing permanent control of histamine presence in fresh fish samples. This control should ensure the prevention of human poisoning and it must be regulated. These findings suggests that during handling Good Hygienic Practices should be respected and followed to minimize histamine formation during time and permanent control should be applied to control histamine presence in fresh fish samples.

Key words: Histamine, Sardine Fish, ELISA.

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ROTAVIRUS ASSOCIATED GASTROENTERITIS AMONG CHILDREN UNDER FIVE YEARS

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ABSTRACT

Severe rotavirus diarrhea in children is a major cause of morbidity globally and mortality in developing countries. The aim of the study was to determine the frequency of rotavirus as a causative agent among children under five years with gastroenteritis admitted to hospital. This is a retrospective study. A total of 345 cases of acute diarrhea mainly in children below 5 years of age admitted at tertiary care Pediatric hospital in University center "Mother Theresa" over the period 2011- 2013 were included in the study. Medical history, diarrhea symptoms, treatment prior to hospitalization and demographics were obtained from medical records. Stool samples were analyzed for rotavirus using an enzyme linked immunoassay. The mean age of children is 20.3 months. Of the 345 samples collected 35.4%, 95%CI (30.5-40.5) were positive for rotavirus. The seasonal distribution demonstrates that rotavirus associated diarrhea is more frequent during winter (42.2%) and spring (40.4%) seasons. Etiologic data on diarrheal diseases and are important tools for clinical management and control strategic planning. Rotavirus infection is a major cause for hospitalization of children below the age of 5 years with acute diarrhea.

Key words: diarrhea, pathogen, hospitalization

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TERRITORIAL MARKETING FOR DEVELOPMENT OF TOURISM

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ABSTRACT

Marketing approach is very important for attracting human, material, financial innovations and other resources on the competitive market. The use of marketing management principles in territorial development can be considered as a key indicator of success, maximizing the needs of its residents in public services and benefits, creating more attractive living conditions in comparison with other areas, and developing commercial and non-commercial structures. The current economic crisis, the return of emigrants and the new approach of the government has led to the development of the concept known as territorial marketing especially in coastal cities of Albania but also in mountainous areas of the country. These territories have invested mainly in the improvement of infrastructure to develop and promote the tourism. Also the informal and traditional life style, and the contact with nature that characterize rural regions put them in a unique position to respond to the growing concern of citizens about the quality of life in general, and about quality, health, safety, personal development and leisure in particular. Many activities are organized to meet the demand of target customers such as special events, to help the enhancement of the overall territory as a product. The study describes various areas of marketing activity of local authorities in five territorial units in the context of development of domestic tourism. In such context, the territory becomes a product attracting attention and providing benefits to businesses and community operating in it.

Key words: territorial marketing, development, tourism

DERMATOLOGICAL MANIFESTATIONS AMONG PATIENTS WITH CHRONIC RENAL DISEASE ON HEMODYALISIS

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ABSTRACT

Chronic renal failure presents with various cutaneous manifestations. The aim of this study was to estimate the frequency and pattern of cutaneous manifestations among patients with chronic renal failure on regular haemodialysis. This is a prospective study of 65 patients with chronic kidney disease on haemodialysis presenting at University Hospital Centre "Mother Theresa" in during the period February 2012- September 2014. All patients were examined by a dermatologist to assess the skin, hair, nails, and mucous membranes. Of the 65 studied patients, 30 (46%) were women and 35 (54%) were men with a mean age of 49.2 ± 15.8 years. The duration of hemodialysis was 27.8 ± 11.0 months. Dermatologic examination revealed that 63 patients (97%) suffered from at least 1 type of skin problems. Xerosis (56.9%), pruritus (47.7%) and pallor (23.1%) were the most frequent dermatological manifestations. Hair problems were present in 43 (66.2%) patients, nail disorders were present in 42 (64.6%) patients whereas oral mucosal disorders were present in 31 (47.7%) patients. Cutaneous alterations are frequent in patients with chronic renal disease. All the patients should follow up regularly dermatological examination to reduce the morbidity.

Key words: chronic renal disease, dermatologic manifestations, hemodialysis

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IMPROVEMENT OF ENVIRONMENTAL QUALITY THROUGH OPTIMIZATION OF THE OPERATIONAL PARAMETERS DURING AGRO-FOOD RESIDUES TREATMENT

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ABSTRACT

The challenge for us was to find tracks of studies and research, which brings availability of some important skills such as: environmental analysis, ability for making choice of suitable way of waste treatment and operative conditions, in order to profit a strong intellectual and professional grasp of the problems encountered. The contribution of our research and experimentation is however connected to traditional and advanced chemical and technological procedures as well as biotechnology new trends. During this work we were able to analyze, and to create a data bank on the environmental especially focused in the agro-food waste management, situation within some of the hot areas with strong impact on the environment, increase awareness of the people living around the chosen area about their role in keeping clean the environment, establishing proper strategies for an integrated management and generalizing it for a wider territory, research on the different topics related to possibly contaminated fields and rural areas, caused mostly from the human activity, (in agriculture, using pesticides etc.), as well as from industrial and other activity, propose most cost-effective techniques and reliable technology for their treatment, in order to recovery properties and respective quality of water and wastes, suitable for the whole community of the area. It was necessary to build, to validate and to run advanced management structures.

Keywords: agro-food wastes, operational parameters, optimization strategy, waste treatment