

Vol. 4 (3): 301-308 (2014)

ENERGY SECURITY OF SUPPLY FOR EUROPE: THE NUCLEAR OPTION

M. Zucchetti, R. Gerboni, D. Grosso

DENERG – Politecnico di Torino, Corso Duca degli Abruzzi 24 – 10129 Torino, Italy;

Email: massimo.zucchetti@polito.it;

Received May, 2014; Accepted July, 2014

ABSTRACT

Security of energy supply for Europe is an increasing source of discussion and research as western Europe consistently depends upon the supply of fossil fuels from other regions in the world. This paper briefly analyses the main routes Europe presently exploits to fulfil its energy demand and then focuses on the strategies it applies to rule over energy storages. It appears that, while fossil fuels storage strategies are conceived to overcome short duration shortages, nuclear energy would allow for a longer period autonomy as the storage of nuclear material at the plant facility is usually energetically greater than the corresponding storage of oil. This allows to conclude that the nuclear option can improve energy security in Europe.

Key words: security of supply, shortage, nuclear fuel

SEASONAL VARIATION OF HEAVY METALS (FE AND CU) IN RIVER GOMTI OF LUCKNOW CITY AND COMPARATIVE STUDY OF THEIR PHYTO ACCUMULATION BY TWO NATIVE MACROPHYTES *TRAPA NATANS* AND *MIMULUS GLABRATUS*

Sameer Chandra¹, S.K. Rawat², Rana P. Singh², Sanjay K. Garg^{1*}

¹Department of Plant Sciences, MJP. Rohilkhand University, Bareilly-243006, U.P., India;

²Department of Environmental Science, Babasaheb Bhimrao Ambedkar University, Lucknow-226025, U.P., India;

*Email: gargskplantscience@gmail.com;

Received May, 2014; Accepted July, 2014

ABSTRACT

This study evaluates temporal peculiarity of Fe and Cu in river Gomti during three consecutive years and assesses the efficiency of two native macrophytes *T. natans* and *M. glabratus* in accumulation/removal of pollutants under in-situ and ex-situ. During the year 2009 Fe concentration ranged between 1.110-1.339 mg L⁻¹ and Cu from 0.008-0.021 mg L⁻¹ throughout pre-monsoon period whereas during post-monsoon Fe concentration was between 1.103-1.185 mg L⁻¹ and Cu was recorded from 0.003-0.008 mg L⁻¹. During the year 2010 and 2011, Fe concentration ranged between 1.122-1.384 mg L⁻¹ and Cu ranged from 0.010 -0.023 mg L⁻¹ in pre-monsoon period and in post-monsoon Fe ranged from 1.082-1.184 mg L⁻¹ and Cu ranged from 0.04-0.09 mg L⁻¹ in Gomti river water. Removal of Fe by *T. natans* was 64.4% in net house and accumulation was 56% and at river site the accumulation was 45% whereas in *M. glabratus* 56.6% removal and 47.6% accumulation was noted in net house and at river site 36% accumulation was noticed. *T. natans* removed Cu by 60% and accumulated 46.6% whereas *M. glabratus* removed 53% and accumulated 33% in net house and at river site Cu accumulation was 37% in *T. natans* and 29% increment of Cu was observed in *M. glabratus*. It resulted that *T. natans* showed more potential than *M. glabratus* in bio-accumulation of Fe and Cu from water.

Key words: Bio-accumulation, Gomti river, Heavy metals, *M. glabratus*, *T. natans*.

Vol. 4 (3): 315-322 (2014)

ORGANIZATIONAL CULTURE AND SUSTAINABLE DEVELOPMENT: CASE STUDY MONTENEGRO

Gordana Nikčević

Faculty of Economics, 81 000 Podgorica, Montenegro

Email: gogan@t-com.me

Received May, 2014; Accepted June, 2014

ABSTRACT

Organizational culture is an integral part of each company's business. It is usually shaped by current trends in the society and represents a reflection of a society's dominant values. Organizational culture is often cited as a key component that should be an asset of sustainable development. A purpose of this paper is firstly to determine, through theoretical and then through a practical part, i.e. through certain characteristics of organizational culture in Montenegrin companies, to what extent and in which manner organizational culture of analyzed companies in Montenegro affects sustainable development concept. The research was carried out on a sample of 16 Montenegrin companies, i.e. 324 respondents. The results of this study may serve for better understanding and integration of appropriate organizational culture into the concept of sustainable development. Thus, the concept of sustainable development is fully defined and completed by this modern concept.

Key words: organizational culture, sustainable development, competitive advantage, management

ECONOMIC AND FINANCIAL PROBLEMS IN GREENHOUSE INDUSTRY AND PROSPECTS OF ITS DEVELOPMENT

Flora Merko^{1,2}, Henrieta Themelko², Stilian Apostoli², Mimoza Koka², Eralda Shore³

¹Financial at Ministry of Agriculture, Tirana, Albania;

²Agricultural University of Tirana, Albania;

³"IDEATEL" SHPK coordinator, Albania;

Email: floramerko@yahoo.it

Received May, 2014; Accepted July, 2014

ABSTRACT

Agriculture as one of the most important branches of the economy is estimated to have contributed significantly to economic growth, developing faster than other branches. During these years, in all Government programs, is constantly emphasized that the Ministry of Agriculture will give priority treatment to agricultural development policies in greenhouses products, through the fiscal and preferential policies, also with other supports for increasing the competitiveness at the market for specific products. Greenhouses represent the most advanced type of protected environments. Particularly, the production of vegetables in greenhouses, is a competitive activity, from which the society has the benefit of production in own country. Economic and financial analysis of various types of greenhouses, by calculating complex indicators, identifies the type more effective of them, and which type of greenhouses belongs to the future. The production in greenhouses needs for direct funding, which until now have been lacking due to financial inability and failure of the state system through bank lending. This sector needs long-term loans with low interest rates, which have lacked until now. Promoting the production in greenhouses needs a specific support in terms of customs policy, mainly for materials to build greenhouses and their equipment, and also the Governments subsidies for fuel and inputs of this sector. The goal here is to show which kind of greenhouse is more effective, which are the economic and financial problems in greenhouses and the prospects for the future of this industry.

Key words: greenhouses, agriculture financing, economic and financial analysis, construction technology, comparative advantages, critical point, SOWT, PAM.

MICROSCOPY STUDY OF ZIEGLER-NATTA CATALYST: A TEST OF TEM (TRANSMISSION ELECTRON MICROSCOPY)

Adelaida Andoni¹, John C. Chadwick², Peter C. Thüne³, Hans (J.W.) Niemantsverdriet³

¹University of Tirana, Faculty of Natural Sciences, Department of Chemistry, Tirana, Albania;

²Eindhoven University of Technology, Laboratory of Polymer Chemistry, Eindhoven, The Netherlands;

³Eindhoven University of Technology, Schuit Institute of Catalysis
Department of Inorganic Chemistry and Catalysis, Eindhoven, The Netherlands;

Email: adelaida.andoni@fshn.edu.al; adelaida.andoni@unitir.edu.al

Received May, 2014; Accepted July, 2014

ABSTRACT

Planar Ziegler-Natta model catalysts are used to establish a preparation which resembles the industrial counterpart and to be active towards ethylene and propylene polymerization and most prominently to contribute in elucidation of $MgCl_2$ crystal structure. We set a high value on the planar model catalyst as the latter offers the unique possibility of applying the spincoat-impregnation followed by highly favorable opportunities for surface characterization and imaging. In this context, construction of a special TEM grid has enabled TEM analysis on flat silicon/silica wafers. The silica TEM substrate is composed of a silica window suspended in a silicon framework. The silica window permits the transmission of the electron beam. In other words TEM grids not only facilitate imaging on a flat model catalyst but they can serve as a catalytic support as well. The aim is to image by TEM, $MgCl_2$ crystals produced by Ostwald method on a TEM grid and compared them with the other planar model i.e. silica surface (no grids included on the flat surface).

Keywords: Ziegler-Natta catalyst, planar model, microscopy techniques

ZOOPLANKTON ABUNDANCE AND DIVERSITY IN LAKE OHRID, MACEDONIA

Dafina Guseska^{1*}, Orhideja Tasevska¹, Goce Kostoski¹, Dimitar Guseski²

^{1*} Department of zooplankton, Hydrobiological Institute, Ohrid, Macedonia;

² Institute of Biology, Faculty of Natural Sciences and Mathematics, University "St. Cyril and Methodius", Skopje, Macedonia;

*E-mail: guseska@yahoo.com

Received May, 2014; Accepted July, 2014

ABSTRACT

The zooplankton community structure and abundance in Lake Ohrid pelagic zone was studied throughout two annual cycles (January 2010 – October 2011). Copepods especially calanoids: *Eudiaptomus gracilis* and *Arctodiaptomus steindachneri* numerically dominated the community throughout the investigation period. The dominance of Copepoda in the communities, gives the copepod character of the zooplankton. Cladocerans were found all year round. The group was fourth in term of density. The mean density was 3% of total numbers over the whole study period. They represented a significant component of the zooplankton in the summer and autumn months when apart from the autochthonous species *Daphnia pulicaria* and *Bosmina longirostris*, two allochthonous species *Diaphanosoma birgei lacustris* (present in greater numerical values) and *Leptodora kindtii* were evidenced. Rotifers are present in zooplankton in small numbers during the whole year. The group was second to the Copepoda in term of density. Their maximum was evidenced in the summer and autumn months when *Kellicotia longispina* was predominant. The larval stages of *Dreissena (Carinodreissena) stankovici* are present in the Lake Ohrid zooplankton during the whole year; the group was third in term of density. No substantial differences in regard to results of previous investigations (1999-2009) were observed. The only difference is lower density of Cladocera in the summer-autumn period in comparison with previous investigations. The results of the comparison of different investigations confirm that the trophic state of pelagial region of Lake Ohrid may be classified as oligotrophic.

Key words: zooplankton, seasonal dynamics, Lake Ohrid

Vol. 4 (3): 341-346 (2014)

ANALYSIS ON OLIVE CULTIVATION IN ALBANIA

Erdit Nesturi, Stilian Apostoli, Edmond Kadiu

Agricultural University of Tirana, Albania

Email: erditnesturi@yahoo.com

Received May, 2014; Accepted July, 2014

ABSTRACT

The material means to analyses the olive cultivation sector on three key moments. - At start, is given the situation of olive cultivation for the 2000-2001 period and the features that characterize it. It is sectioned and focused, with a deepening trend. Results developed in width and depth and has received features an organic agriculture. The report of olives in production / total olives varies from 33% to 77%, which indicates non-small reserves for olive production, but also good olive oil reserves, etc...- Secondly, it is analyzed the prospect of developing new olive groves for the years 2000 - 2011 (it is marked a continuously increasing, over 5 times), and an additive project of 20 million roots (60 thousand hectares) by 2022. The distinguishing feature is the intensive and super intensive development as a new occurrence in the perspective of agricultural development in general. This aspect is analyzed with the issues related to the rehabilitation of existing olive groves, where 68% of them are 50 years old.- Third, financial-economic analysis is made, indicating that olive production for 2000-2011 has nearly doubled, with the trend to be 12 times greater in 2022/2010. Olive oil also increased by 3.6 times and is estimated to be 4.4 times more in 2022/2010. It is estimated that the income will have a significant increase of 18 times in 2022/2010 and starting in 2018 there will be an investment repayment.

Key words: - Olive cultivation, super intensive olives, structures of cultivars, total cost Income, investment repayment, regionalization and concentration of olives, Direct financial support.

Vol. 4 (3): 347-352 (2014)

FACTORS INFLUENCING THE SULFATE RESISTANCE OF CONCRETE**Denisa Demi***Fushë - Kruja Cement Factory, Tirana, Albania;*E-mail: denisademi@yahoo.com

Received May, 2014; Accepted July, 2014

ABSTRACT

Cement is the most popular building material for the civil engineering structure. The performance of these structures in the terms of stability and strength has resisted by time, but the life span of these structures has been always a concern. From the environmental aspect this is becoming chemically more aggressive. Atmosphere is found to have increment of sulfur dioxide concentrations, carbon dioxide and chloride concentrations. Sulfur oxides are harmful for the concrete, whereas chloride is harmful for the reinforcing steel. As a consequence, the life span of the reinforced concrete structures is evidently threatened compared to the estimated life span for almost 90 years. The impact of sulfate ions in deterioration of concrete is studied intensively. Concrete is the most widely used material, because of its performance in the concrete strengths. But a serious problem might come by a result of the chemical attack, concrete cracks and consequently the deterioration of concrete. The reaction of sulfate ions (SO_4^{2-}) with the cement hydrated products is a volume increasing reaction, which leads to changing in volume and it is shown as sulfate attack of concrete. Based on the available literature, this study presents the use of composite cements, which by time will be affected by the parameters related to the sulfate resistance of cement and concrete.

Key words: concrete, mortar, sulfate resistance

ATMOSPHERIC DEPOSITION OF HEAVY METALS IN THE SOUTHERN ALBANIA STUDIED BY MOSS BIOMONITORING USING ICP-AES TECHNIQUE

Majlinda Terpo¹, Majlinda Vasjari², Romeo Mano³, Dhori Terpo³, Marsela Çomo¹, Marie Agolli¹

¹ Biochemistry Department, Faculty of Natural Sciences, University "Eqrem Çabej", Gjirokastra, Albania;

² Chemistry Department, Faculty of Natural Sciences, University of Tirana, Albania;

³ Department of Mathematics & Computer sciences, Faculty of Natural Sciences, University "Eqrem Çabej", Gjirokastra, Albania;

Email: mterpo@yahoo.com

Received May, 2014; Accepted July, 2014

ABSTRACT

The bioaccumulation of lead, copper, zinc and cadmium in moss collected from polluted and unpolluted areas is presented in this work. Heavy metals are ubiquitous pollutants which are persistent and get transferred from one tropic level to another. The ability of mosses to passively accumulate heavy metals from dry and wet deposition have made them excellent biomonitors of metal deposition in the environment. Samples of the terrestrial moss *Hypnum cupressiforme* were collected in September - October 2010 from 17 sites according to the guidelines of the LRTAP Convention – ICP Vegetation. Collected moss samples were cleaned and totally digested by using microwave digestion system. The content of elements was determined by atomic emission spectrometry with inductively coupled plasma (ICP-AES). Geographical distribution maps of the elements over the sampled territory were constructed using GIS technology. The results were compared with the results obtained in some other neighboring countries and Norway as a pristine area. The most contaminated sites with Cd, Pb, Cu and Zn are those with high vehicular movement and high population density.

Keywords: atmospheric pollution, lead, copper, zinc, cadmium, biomonitoring, moss, ICP-AES

Vol. 4 (3): 359-364 (2014)

PREVALENCE OF BRUCELLOSIS IN THE DISTRICT OF GJIROKASTRA FOR THE YEARS 2003-2013 AND IT'S REDUCTION THROUGH THE USE OF TREATMENT CHEMICALS

M. Agolli¹, M. Terpo², Dh. Terpo³, E.Meçi²

¹University "Eqrem Çabej", Gjirokastra, Albania;

²University of Tirana, Albania;

Email: agollimaria@yahoo.com

Received May, 2014; Accepted July, 2014

ABSTRACT

Brucellosis is a bacterial infectious disease caused by *Brucella melitensis*. The infection from *Brucella melitensis* is a known fact and one of the most important challenges to human health, having big economic and financial consequences, especially in countries where the disease is endemic, such as Albania. In the last 20 years the frequency of the spread of zoonoses in Albania is increasing in a considerable way, especially in the southern and south-eastern region where it is more vulnerable. The knowledge regarding the frequency of brucellosis, the time, space and age dynamics and the ways of its transmission are the purpose of this study. The exploring of the structure of the brucellosis infection enables the presentation of a more complete picture on its epidemiological prophylaxis and on the identification of the mechanisms and links that can interact to prevent and eliminate the brucellosis infection in human beings.

Key words: brucellosis, zoonoses, serologic method, epidemiology

Vol. 4 (3): 365-376 (2014)

MODELS AND SCENARIOS FOR ENERGY PLANNING: ALBANIA VERSUS ITALY CASE STUDIES

Massimo Zucchetti, Raffaella Gerboni, Daniele Grosso

¹*DENERG – Politecnico di Torino, Corso Duca degli Abruzzi 24 – 10129 Torino, Italy;*

Email: massimo.zucchetti@polito.it;

Received May, 2014; Accepted July, 2014

ABSTRACT

Italy and Albania are facing similar energy issues: a scarce domestic production and a reliance on foreign supply. For both as for the rest of Europe, CO₂ emissions are under strict control in order to reach the self-imposed environmental targets. The present situation of the Albanian energy sector highlights also a high dependency from hydropower generation: this represents vulnerability in the long term, as water flows are generally not constant and the effect of climate changes might impact on the predictability and on the producibility of such a technology. The Albanian electricity network is also affected by high loss rates (reaching peaks of 30%). Starting from the analysis of the present situation, the study provides also some results of a forecast exercise where the possible role of Albania as a gas player (due to its strategic position) might represent a solution in view of a diversification of fuels, which is becoming increasingly necessary. The exercise is performed making use of a model developed within the EU REACCESS project which allows to evaluate the optimal energy supply mix under the cost point of view, taking into account all the technological and economical details of the energy solutions, infrastructures and processes involved. The model also foresees the possibility to take into account for the geopolitical risk posed by some countries. The comparative analysis with Italy shows how the two countries, although with very different orders of magnitude, represent a possible South Europe hub for gas delivery to the rest of the continent.

Keywords: security of supply, natural gas, risk, energy corridors

EVALUATION OF CHOP REGIMEN TOXICITY IN PATIENTS WITH NON HODGKIN'S LYMPHOMA

Arjana Durbaku¹, Arben Ivanaj², Majlinda Kokciu³

¹*Oncologic Service, University Hospital Center "Mother Theresa", Tirana-Albania;*

²*Hematologic Service, University Hospital Center "Mother Theresa", Tirana-Albania;*

³*Clinical-Biochemical Laboratory, University Hospital Center "Mother Theresa" Tirana-Albania;*

Email: durbakuarjana@gmail.com; aivanaj@yahoo.fr; kocium@gmail.com

Received May, 2014; Accepted July, 2014

ABSTRACT

Non-Hodgkin's lymphoma (NHL) is the most common hematologic cancer among adults in the world. Evidences imply that multicyclic CHOP chemotherapy may improve the treatment outcome in intermediate grade NHL. The objective is to evaluate the adverse effects of CHOP therapy on hematological and gastrointestinal parameters with each cycle of chemotherapy. This is a prospective study conducted at Oncological Service at University Hospital Centre "Mother Theresa" with NHL patients receiving 6-8 cycles of CHOP chemotherapy. After 8 chemotherapeutic cycles, 20% patients represented healthy living, whereas 64% patients showed grade 1 and 16% subjects showed grade 2 adverse events, $p < 0.01$. As chemotherapy cycles progressed 48% of the patients had grade 2, 16% of the patients had grade 3 anemia and 8% subjects had grade 4 anemia after the 8th cycles. Nausea was a persistent problem and the severity increased with each cycle and few subjects had grade 3 nausea. Irrespective of the grades, nausea was encountered in 52% of subjects in the fourth cycle followed by 75% in the eighth cycle. Vomiting occurred in about 21% subjects by the eighth cycle. The CHOP chemotherapy protocol was well tolerated by majority of the patients.

Keywords: NHL, CHOP chemotherapy, toxicity pattern.

THE INFLUENCE OF PERIAPICAL PATHOLOGY AND ENDODONTIC TREATMENT IN ODONTOGENIC INFECTIONS

Loreta Pojani Aranitasi¹, Luella Aranitasi²

¹Albanian University, Tirana, Albania;

²University of Medicine and Odontology, Valencia, Spain;

Email: loretapojani@hotmail.com

Received May, 2014; Accepted July, 2014

ABSTRACT

In literature and contemporary thought is already evident the fact that the number of odontogenic maxillofacial infections has increased, even claimed that it be the result of increased difficulty brought from daily routines, as well as emergency dental care. On the present study we tried to survey and evaluate the clinical odontogenic infections framework with periapical pathology as the origin of infection, to determine the predisposing factors of these infections. Retrospective cohort study conducted on a patient population with infectious complications as a result of apical periodontitis, the data of which (52) were collected over a period of several years (2009-2013), whether they were treated, or only asked medical assistance from us. Odontogenic maxillofacial infections can also be a result of complications following dental treatment. Primary treatment, the ongoing root canal endodontic procedures is not rare that precedes the spread of infection in a periapical periodontitis. Initiation and conduct of this treatment with a non finish correct technique or inadequate treatment of an apical periodontitis seems to be a risk factor for local distribution and invasion by infection of adjacent tissue structures, the local abscess creation. The quality of a full pulp channel treatment appears to have a low impact on the risk for initiation of an inflammatory process. Even though a dental procedure can provoke activation of pre-existing infection, leaving a potential source of infection untreated, poses a significant risk of infection complications and cannot be overlooked.

Keywords: RCT, acute periapical periodontitis, dental infection, treatment

NEW TECHNOLOGIES IN SEEDLINGS PRODUCTION PREVENT ITS ADVERSE EFFECT ON OZONE LAYER AND LEACHING OF SALTS AND NITRATE INTO GROUNDWATER

Ivan Turšić^{1*}, Darka Hamel², Hana Mesić³, Rafael Sanz⁴, Trajkoski Jordan⁵

^{1*}*Tobacco Institute Zagreb, Croatia;*

²*Croatian Center of Agriculture, Food and Rural Affairs, Croatia;*

³*Croatian Environment Agency, Croatia;*

⁴*UNIDO;*

⁵*Tobacco Institute Prilep, Macedonia;*

*Email: itursic@agr.hr

Received May, 2014; Accepted July, 2014

ABSTRACT

Methyl bromide (CH₃Br) is used in soil fumigation to control pests, weeds and diseases in the production of seedlings of vegetables, flowers, tobacco etc. in the world. In Croatia, use of methyl bromide was approved in 1965 only for soil fumigation in the production of tobacco seedlings. According to the Montreal Protocol CH₃Br is on the list of ozone depleting substances. Hence, its use is allowed only until 2005 in developed countries, and until 2015 in developing countries, with certain restrictions upon its application. In EU, use of CH₃Br was banned in 2001. Pursuant to the directive of the Ministry of Agriculture, use of CH₃Br in Croatia is allowed in the tobacco seedling production until 31 December 2005. This prompted research into new seedling production technologies without CH₃Br in order to prevent its adverse effect on the ozone layer, as well as to avoid leaching of bromine salts into groundwater. Research was started by the Tobacco Institute and was intensified with the support of UNIDO and now tobacco producers produce seedlings without applying CH₃Br. The results of the experiment have shown that in our pedoclimatic conditions seedlings of good quality can be produced on the plots where methyl bromide was used or with floating tray system as an alternative for the methyl bromide. Seedlings produced on the floating tray system were equally developed and of equal quality. The acceptance, growing and development of such plants in the field were better. Tobacco yield obtained of seedlings from floating tray system was higher and of better quality compared to the tobacco obtained from seedlings grown on plots treated with methyl bromide.

Key words: float tray system, tobacco, CH₃Br

SPIKE TRAITS AND YIELD PARAMETERS AMONG SOME WHEAT CULTIVARS UNDER AGRO-ECOLOGICAL CONDITION OF KOSOVO

Shukri Fetahu¹, Sali Aliu¹, Imer Rusinovci¹, Refki Zogaj¹, Avni Beluli¹, Dukagjin Zeka¹, Qëndrim Shabani¹

¹University of Prishtina, Faculty of Agriculture and Veterinary, Str. "Bill Clinton" N.N.10000 Prishtina, Kosovo;

Email: shfetahu@hotmail.com ; shukri.fetahu@uni-pr.edu

Received May, 2014; Accepted July, 2014

ABSTRACT

Wheat yield is the complex trait, depending from genetic and environmental factors, level of applied technology and their interaction. Different wheat cultivars, from BC-Institute-Croatia, were evaluated for spike traits and grain yield. Field trials were conducted during the growing seasons 2010/11 and 2011/12, at the Plant Testing units of Seed company "Semenarna Kosovë" shpk, Prishtina, in Locality-Livadhi, located in geographical position: N42°05' 54", E 21° 06'36", and 581 M.A.S.L. The experimental design was complete random block with three replications (RCBD), according to combinations: (Years, Y-2 x Cultivars, C-13 x Replication, R-3 x Parameters, P-4) = 312 results. For data analysis were used ANOVA, and Multiple Comparisons with the Best, Fisher Method and Pearson correlation coefficient, according to the program MINITAB -16©. The aim of the research was to evaluate spike traits and grain yield for different wheat cultivars, from BC-Institute-Croatia. With this research was possible to determine the most promising wheat cultivars suitable to Kosova agricultural conditions. Two-year investigation, shown an average values for different parameters: Spike length ($SL_{\mu}=7.76$ cm spike⁻¹), Grain number per spike ($GNS_{\mu}= 40.75$), Spike weight ($SW_{\mu}= 1.90$ g spike⁻¹) and Grain yield per square meters ($GY_{\mu}= 574.55$ g m²). All evaluated parameters and interaction between genotype and years, showed significant difference for LSD 0.05 and 0.01 on level ($P < 0.05$ and 0.01).

Key words: Wheat, cultivars, spike traits, yield, variability.

Vol. 4 (3): 397-402 (2014)

MEASUREMENTS OF RADON CONCENTRATION IN SOIL GAS BY SCINTILLATION CELLS IN KOSOVO

S. Makolli¹, K. Dollani¹, G. Nafezi², M. Bahtijari³

¹*Institute of Radiation Protection, Tirana, Albania;*

²*Faculty of Mathematic and Natural Sciences, University of Prishtina, Kosovo;*

³*Faculty of Medicine, University of Prishtina, Kosovo;*

Email: mbahtijari@yahoo.com

Received May, 2014; Accepted July, 2014

ABSTRACT

Radon-222 is a natural radioactive gas emanated by Radium (Ra-226) radioactive decay and is found in the Earth's crust with different concentrations. The release of Radon from rocks and soils penetrate into air and dwellings, therefore the study and identification of areas with the high Radon concentration in soil gas is of particular importance. The measurement of radon concentration is necessary because of radiation health risk, which Radon represent for human being and environment. In this study the measurements of the Radon concentration in soil gas is made with PRM 145 apparatus based in alpha scintillation cells in 20 locations of Kosovo, with a total of 51 points. Radon concentration measurements vary from 2800 Bq/m³ up to 99999 Bq/m³ with an averaged value of 22000 Bq/m³. These measurements represent the first efforts for measuring the Radon concentration in soil gas in Kosovo. Based in the given results one can conclude that the average Radon concentration in soil gas is of the same range with average Radon concentration found for the region countries. The studies are planned to continue by increasing the number of locations and points of measurements.

Key words: Radon concentration in soil gas, scintillation cells, radiation health risk.

Vol. 4 (3): 403-408 (2014)

URBAN ECOLOGY- STUDY CASE AGRI TOWN, TURKEY

Gina Raluca Kerkmann¹, Nevzat Alpaslan², Hysen Mankolli³

¹*İbrahim Çeçen University, Faculty of Arts and Sciences, Department of Biology, Erzurum Yolu Üzeri04100-Ağrı, Turkey;*

²*Director at Population Register Centre, Agri prefecture, Turkey;*

³*Earth Science System Interdisciplinary Center (ESSIC), University of Maryland College Park, MD, USA;*

Email : grkerkmann@agri.edu.tr; Nevzat.Alpaslan@mernis.intra; hysenmankolli@yahoo.com;

Received May, 2014; Accepted July, 2014

ABSTRACT

The planet population is continuously increasing; during the last century, it increased ten times compared to the previous century. By 2030, more than 60% of the planet population is expected to live in cities. Turkey represents one of the Asian countries characterized by a rapid economic development in the last years; there should be also mentioned the demographic increase encouraged by an administration based on long-term projects and a political strategy in favour of better standards of living for all its 70 million inhabitants. The present paper aims at analysing Agri urban ecosystem based on the increase of the anthropogenic pressure induced by an increasing population during the last years, triggered by the general phenomenon of migration from rural areas towards cities, as well as from east to west. The aspects rendering the local population statistics were compared to the ones registered at national level.

Key words: Agri, ecology, population

**NEW FINDINGS OF PARASITE FAUNA OF OHRID MORANEC
(*PACHYCHILON PICTUM* HECKEL & KNER, 1858) (TELEOSTEI:
CYPRINIDAE) FROM LAKE OHRID, MACEDONIA**

Stojmir Stojanovski¹, Lidija Velkova-Jordanovska¹, Nikola Karabolovski², Stoe Smiljkov³

¹Hydrobiological Institute, Naum Ohridski Str. 50, 6000, Ohrid, Macedonia;

²Veterinary Faculty, Prilepska Str. bb, University St. Kliment Ohridski, 7000, Bitola, Macedonia;

³Faculty of Natural Sciences, Arhimedova Str. 3, University St. Cyril and Methodius, 1000, Skopje, Macedonia;

Email: stojstoi@gmail.com

Received May, 2014; Accepted July, 2014

ABSTRACT

Lake Ohrid is the oldest lake in Europe. The lake is inhabited by 17 autochthonous species, of which 10 species (60%) are endemic. Within the parasitological examinations of the fishes from the Macedonian part of the Lake Ohrid were comprised 226 specimens of the endemic fish species Ohrid moranec (*Pachychilon pictum* Heckel & Kner, 1858) of which 117 specimens (51.77%) were infected. In our case study the presence of 7 parasite species was evident: *Dactylogyrus caballeroi*, *Plagioporus stefanskii*, *Cystidicoloides tenuissima*, *Contracaecum microcephalum* (larva), *Metechinorhynchus salmonis*, *Pomphorhynchus laevis* and *Pomphorhynchus bosniacus*. Separately, by parasite species, the highest prevalence is with *Dactylogyrus caballeroi* (44.69%), and the lowest prevalence is with *Plagioporus stefanskii* (0.44%). *Plagioporus stefanskii* is mentioned in our study for the first time in the ichthyoparasitofauna of Lake Ohrid and Macedonia. The parasites of the Ohrid moranec is mostly freshwater forms, with one element that is common to both marine and fresh waters (*Metechinorhynchus salmonis*). One aspect of the parasites found, is their wide area of distribution and wide spectrum of hosts, such as: *Cystidicoloides tenuissima*, *Contracaecum microcephalum* (larva), and *Metechinorhynchus salmonis*. But, *Pomphorhynchus bosnicus* is stenoparasite or at the border of stenoparasitism, because it is confined within the Balkan Peninsula, especially on its western part.

Keywords: parasite, Moranec, Lake Ohrid.

DRINKING WATER QUALITY IN LEZHA REGION FOR THE PERIOD 2006 - 2013

Rozarta (Turku) Nezaj¹, Klementina Puto²

¹National Center of Quality, Safety and Accreditation of Health Institutions, Albania;

²University of Tirana, Faculty of Natural Sciences, Department of Biotechnology, Albania;

Email: rezarta8@hotmail.com

Received May, 2014; Accepted July, 2014

ABSTRACT

The quality of water, whether used for drinking, domestic purposes, food production or recreational purposes has an important impact on health. Water of poor quality can cause disease outbreaks and it can contribute to background rates of disease manifesting themselves on different time scales. Initiatives to manage the safety of water do not only support public health, but often promote socioeconomic development and well-being as well. (WHO, 2013; Liu et al., 2012). Millions of people are exposed to dangerous levels of microbiological contaminants in their drinking-water due to inadequate management of urban, industrial or agricultural wastewater (Flanagan et. al., 2012; Steinmann et al., 2006; Shuval H. 2003). This research aims to make an assessment of drinking water quality in Lezha Region. Lezha region is a tourist destination for its coast during the months of May – September for the northern Albania. It is a descriptive and analytic study, a retrospective one. There is a data collection of the results from drinking water samples analyzing for microbiological contaminants (*Total Coliforme*), with Multiple tube (most probable number) method. Study and analyzing all the data and comparing them for the period 2006-2013 in order to see the trend of the pollution level of the drinking water.

Key words: quality, drinking water, contamination

Vol. 4 (3): 421-424 (2014)

THE IMPACT OF ENVIRONMENTAL POLLUTION IN SOME MORPHOMETRIC PARAMETERS IN HOUSE SPARROW (*PASSER DOMESTICUS*)

Lulzim Millaku^{1,2}, Resmije Imeri¹, Artan Trebicka²¹University of Pristine "Hasan Prishtina", Department of Biology, Republic of Kosovo;²University of Tirana, Department of Biology, Tirana – Albania;Email: lulzimmillaku@hotmail.com

Received May, 2014; Accepted July, 2014

ABSTRACT

Purpose of this study was evaluation of environmental pollution with metals, through biological monitoring, were analyzed: testicular weight, testicular volume, testicular density, volume of testicular tubules and thickness of tubules membrane in testicles to the house sparrow (*Passer domesticus*). House sparrows (*Passer domesticus*) were captured in the city of Mitrovica (situated close to smelter "Trepqa", down closed in 2000 year) and in rural area (Ujmir village - control). In these localities in months: January, February, March, April and May are catch individuals of house sparrow population (a total of 33 birds males). After isolating, testes of sparrows were cut with microtome and then were stained tissues. Results showed a significant decrease in magnitude ($p < 0.001$) of testicular volume and volume of testicular tubules to the sparrows from Mitrovica compared with sparrows group in the Ujmirë village (control). We observed a significant increase in magnitude ($p < 0.001$) the thickness of the membranes of testicular tubules to the sparrows from Mitrovica compared with the group of sparrows from Ujmirë village (control). Changes observed in the testicular weight and density of testes between study groups but not in significant value. Other studies will be made to have accurate data on environmental pollution in the area.

Keywords: Metals, house sparrow, testes, morphometric parameters.

AN EPIDEMIOLOGICAL STUDY ON TRIGGER FACTORS AND QUALITY OF LIFE IN PSORIATIC PATIENTS

A.Xhaja^{1*}, E.Shkodrani¹, S.Frangaj¹, E.Vasili¹

^{1*}U.H.C. "Madre Teresa", Tirana, Albania

Email: axhaja@gmail.com

Received June, 2014; Accepted July, 2014

ABSTRACT

This goal of study is to evaluate the role of stress, tobacco, drugs, infections, allergies, heredity, alcohol, hormones and skin aggressions as trigger factors and the impact on quality of life in a sample of psoriasis patients. Used methods: A transversal study performed in 90 patients affected by psoriasis interviewed between January and November 2012 at the "Mother Teresa" University Hospital, Tirana, Albania. It is based on two scored questionnaires, the first inquiring about potential trigger factors and the second assessing the quality of life. The collected data was statistically analyzed using the chi-squared statistical test (χ^2 test). From analyzing data have some results: More than 70 % of patients reported that stressful events caused a flare- up of their psoriasis ($p < 0.05$). More than 60% of males and 20% of females were smokers ($p < 0.05$). About 20% of our patients were taking one or more of the medications listed in the questionnaire ($p > 0.05$). About 20% of patients reported having had recurrent infections ($p < 0,05$). About 80% of males patients consumed alcohol ($p < 0,05$). More than 40% reported a relative with psoriasis. Statistical comparison of the group that reported skin aggressions with the group that did not revealed a significant difference ($p < 0,05$). Only a few of them reported to have allergies ($p > 0,05$). About 36% of females reported that hormonal changes (puberty and menopause) exacerbated their psoriasis ($p < 0,05$). More than 40% of patients reported that psoriasis seriously affects their quality of life. Stress, tobacco, infections, heredity, alcohol, hormonal changes and skin aggressions were confirmed as trigger factors for psoriasis in the present sample. We found that psoriasis had a serious impact in the quality of life in over of 40% of the patients interviewed.

Key words: quality of life, environment, evaluation, epidemiological, Albania

EPIDEMIOLOGY OF UNSPECIFIED VIRAL HEPATITIS IN ALBANIA, 2000-2013

Elona Kureta¹, Eugena Tomini¹, Mimoza Basho¹, Enver Roshi², Artan Simaku¹, Silva Bino¹

¹*Institute of Public Health, Tirana, Albania;*

²*Medical University of Tirana, Albania;*

Email: ekureta@gmail.com;

Received May, 2014; Accepted July, 2014

ABSTRACT

Regular monitoring of viral hepatitis related surveillance data is essential to inform and evaluate strategies to reduce the burden of the disease because decisions on public health issues are dependent on reliable epidemiological data. The aim of this study was to examine trends in the incidence and epidemiology of unspecified viral hepatitis in Albania. Data about unspecified viral hepatitis notifications through the principal surveillance system of the infection diseases, 14 Sh form, over the period 2000–2013 were reviewed. The case notification rates presented a significant downward trend over the study period (F-ratio=26.5 p<0.01). The incidence declined from 78.6 cases per 100,000 population in 2000 to 3.1 cases per 100,000 population in 2013. 54.2% of cases were male and 48.2% were female. 50.2% of cases were notified from urban while 49.8% cases from rural areas. The most affected was the agegroup 5-14 years old with 132 cases/10,000 population. Despite the decline in unspecified viral hepatitis notifications the design of the appropriate public health strategies continuous monitoring and enhanced surveillance prevention is needed to control and prevent the viral hepatitis transmission.

Keywords: viral hepatitis, incidence, surveillance, prevention

SURGICAL SITE INFECTIONS IN A GENERAL SURGERY WARD

Ervin Gjerazi¹, Arben Gjata¹, Elona Kureta², Besmir Grizhja¹

¹*Surgical Clinic, University Hospital Center “Mother Theresa”, Tirana-Albania;*

²*Institute of Public Health, Tirana – Albania;*

Email: gjeraziervin@yahoo.com;

Received May, 2014; Accepted July, 2014

ABSTRACT

Surgical site infections are among the most common complications of inpatient admissions and have serious consequences for outcomes and costs. This prospective study aims to determine the frequency of surgical site infections in a general surgery ward of the University Hospital Centre “Mother Theresa” a tertiary care hospital in Tirana during the period 2012-2013. Data were collected on a questionnaire for all the patients who underwent surgery. Patients were followed for up to 30 days for development of surgical site infection. Of the 514 patients, 32 developed surgical site infection (16.2%). The mean age for the patients was 51.4 years. The operations were elective in 81.2% of the cases and 18.8% were urgent. Incidence of surgical site infections was significantly higher in emergency procedures (15.3%) as compared to elective procedures (3.6%). The mean duration of the operation was 2.3 hours, the mean duration of hospital stay 7.9 days. The incidence of SSI was lower in clean (1.8%), and clean contaminated (3.3%), compared to contaminated (7.6%) and dirty procedures (24.6%). Surgical site infections remain common and are a major cause of postoperative morbidity. Careful preparation of the patient and care after surgery is especially important. Inconsistent application of infection control practices may contribute to high SSI rates. A strict adherence to established surgical guidelines for preoperative care is essential for prevention of SSI.

Keywords: Surgical site infections, skin, preparation, prevention

Vol. 4 (3): 441- 444 (2014)

HISTOPATHOLOGICAL ANALYSIS OF GILLS IN FISH POPULATION OF RESERVOIR “STREZEVO” (R.MACEDONIA)

Lidija Velkova-Jordanoska, Goce Kostoski, Stojmir Stojanovski

Hydrobiological Institute, Ohrid, Naum Ohridski Str., No. 50, 6 000 Ohrid, Macedonia;

Email: lidvejo@yahoo.com;

Received May, 2014; Accepted July, 2014

ABSTRACT

During the summer period of 2013, in the reservoir Strezevo have been caught total of 14 pieces of fishes. Out of each specimen there have been dissected a piece of gills for histological analysis, which, thereafter has been processed on the standard procedure for development of histological preparation. They have been analyzed under a microscope and the registered tissue lesion has been photographed. Based on standard histopathological analysis some gills lesions were detected. Microscopic analysis has revealed a series of circulatory and inflammatory changes. Some structural lesions in gill tissue have been accepted as valid biomarkers of anthropogenic stress at fish.

Key words: gills, histopathology, Strezevo

THE PALYNOMORPHOLOGICAL CHARACTERISTICS OF *TANACETUM* IN ALBANIA

Anxhela Dauti^{1*}, Gezim Kapidani², Blerina Pupuleku¹, Nikoleta Kallajxhiu¹, Admir Jance¹, Silvana Turku¹

¹ University "Aleksandër Xhuvani", FNS, Department of Biology and Chemistry, Elbasan, Albania;

² University of Tirana, FNS, Department of Biology, Tirane, Albania;

* Email: dauti.anxhela@yahoo.com

Received May, 2014; Accepted July, 2014

ABSTRACT

The article includes the palynomorphological study of the main members of genus *Tanacetum* in Albania. In this article submitted comparative features of the species: *Tanacetum vulgare*, *Tanacetum corymbosum*, *Tanacetum parthenium*, *Tanacetum macrophyllum*, *Tanacetum larvatum* and *Tanacetum albanicum*. The material for the study was obtained in National Herbarium in Tirana. For the study of palynomorphological features are analyzed 31 pollen grains from each species. The treatment of material is made with acetolysis method and basic fuchsin. The fixing of pollen grains is made with glycerin gelatin. The study and photos of pollen grains are realized with light microscope with 1000x power. The pollen grains of plants above are spheroidal or oblate spheroidal, three furrows three pores. The exine appears thick and has two-layers. The sculpture of exine is echinate. The work is part of the palynological study of general members in Asteraceae family in our country.

Key Words: *Tanacetum*, palynomorphological, pollen grains, exine, spines

Vol. 4 (3): 451 - 456 (2014)

ESTIMATION OF OCCURRENCE AND SPATIAL DISTRIBUTION OF HEAVY METALS IN OHRID AND PRESPA LAKES, ALBANIA

Alma Shehu¹, Sonila Duka¹, Loreta Vallja¹, Arviola Hodaj²

¹Department of Chemistry, Faculty of Natural Sciences, University of Tirana, Blv "Zog I", Tirana, Albania;
²Faculty of Pharmacy, Catholic University "Our Lady of Good Counsel", Rr. Dritan Hoxha, Tirana, Albania;

Email: almashehu2010@yahoo.com

Received May, 2014; Accepted July, 2014

ABSTRACT

The occurrence and distribution of some heavy metals in waters of Ohrid and Prespa lakes were investigated by means of their content determination in the water column. Different anthropogenic pressures, especially heavy metal originating from mining activities might have influenced the fragile equilibrium of the lakes ecosystem. Heavy metal concentrations in water were investigated at selected sites of both lakes. A total of 19 samples of water have been collected and the dissolved fraction of heavy metals such as Fe, Cr, Ni in the water was measured using the GF-AAS technique. According to the results obtained, Fe ($52.7-1.6 \mu\text{g.L}^{-1}$), Cr ($17.9-0.9 \mu\text{g.L}^{-1}$) and Ni ($12.2-3.6 \mu\text{g.L}^{-1}$) were found in high content in the surface and bottom waters of Ohrid and Prespa lakes, (NIVA, 2000). Compared to Ohrid Lake, Prespa Lake was characterized by a lower presence of heavy metals in its waters. Apparent variations of metal content in different depths of each station were evident especially for Fe, assuming that their dissolved fraction is very dependent of lake water factors such as redox potential, presence of other ions as well as water stratification.

Keywords: Heavy metals, water column, Ohrid and Prespa lake, GFAAS.

Vol. 4 (3): 457 - 462 (2014)

WATER QUALITY ASSESSMENT OF MATI RIVER USING WQI

Sonila Duka*, Loreta Vallja, Pranvera Lazo, Alma Shehu

Department of Chemistry, Faculty of Natural Sciences, Tirana University, Tirana, Albania;

*Email: soniladuka@hotmail.com

Received May, 2014; Accepted July, 2014

ABSTRACT

Water pollution was viewed as crucial issue nowadays and if not properly managed and improved can threaten human health, aquatic life as well as the environment. Aware of the importance of water quality, this study conducted to characterize the quality of Mati River, base on the Water Quality Index (WQI) calculation method. Water quality index is one of the most effective tools to monitor the surface as well as ground water pollution and can be used efficiently in the implementation of water quality upgrading programmes. WQI is a suitable tool to examine and classify spatial and temporal variations in water quality and pollution loads in a water body. WQI was calculated based on the six parameters which were; pH, temperature, dissolved oxygen (DO), turbidity, total phosphorus and nitrate nitrogen. Five stations positioned along Mati River, are selected in the frame of this study, with a frequency of every two month during year 2010. According to the obtained results, the range of WQI index varied from 73.79 (station V) to 80.14 (station I), demonstrating slightly polluted water.

Key words: WQI, Mati River, pollution, assessment

Vol. 4 (3): 463 - 468 (2014)

STUDY OF CORRELATION OF HE4 AND CA125 AS SPECIFIC BIOMARKERS FOR THE DETECTION OF OVARIAN CANCER

Ridvana Mediu¹, Elda Marku², Pranvera Lazo²

¹*Clinical-Biochemical Laboratory, General Hospital, Kavaje, Albania;*

²*Faculty of Natural Sciences, Chemistry Department, Tirana, Albania;*

Email: tridvana@yahoo.com

Received May, 2014; Accepted July, 2014

ABSTRACT

Ovarian cancer (OC) is the sixth most common gynecological malignancy characterized by an increasing incidence rate with age and in post-menopausal status. Carbohydrate antigen 125 (CA125) is the established biomarker for OC detection. As CA125 effectiveness in the identification of the malignancy is threatened by its low diagnostic specificity human epididymis protein 4 (He4) measurements in serum have been proposed for improving the specificity of laboratory identification of OC. The aim of our study was to evaluate the diagnostic performance of both CA125 and He4 in discriminating benign ovarian cancer from other benign gynecologic diseases. Our study group consisted of 139 women outpatients aged between 11 and 72 years old (mean age 39 years), which were diagnosed with an ovarian cyst during a visit to a gynecologist or during investigation of unknown abdominal pain by computer tomography. Fasting blood samples were collected and centrifugated using standardized procedure. All analyses were performed in plasma. CA125 and He4 plasma concentrations were determined using automated analyzer Cobas®6000 (Rosche Diagnostics). The data were statistically treated by using Descriptive Statistics. A moderate correlation was found between values of CA125 and He4 ($r=0.619$). The mean plasma concentration for CA125 was 30.58 U/ml (30.58 ± 36.54) and for He4 was 49.62pM/L (49.62 ± 32.22). Measuring together CA125 and He4 biomarkers can be used for a better classification and diagnosis of women with an ovarian cystic pelvic mass.

Keywords: He4, CA125, tumor marker, ovarian, cancer

Vol. 4 (3): 469 - 474 (2014)

PREVALENCE AND ANTIMICROBIAL SUSCEPTIBILITY RESULTS OF EXTENDED-SPECTRUM B-LACTAMASES-PRODUCING *ESCHERICHIA COLI* AND *KLEBSIELLA* IN A TERTIARY HOSPITAL

Vasilika Mano¹, Betim Byku², Gentian Kasmi¹

¹Laboratory of Microbiology University Hospital Center "Mother Theresa", Tirana, Albania;

²Faculty of Medicine, Tirana, Albania;

Email: vasilikamano@yahoo.com

Received July, 2014; Accepted August, 2014

ABSTRACT

This study aimed to determine the prevalence and assess antimicrobial susceptibility of extended- spectrum β -lactamase producing *Escherichia coli* and *Klebsiella* isolated from urine specimens of patients at a tertiary hospital in Tirana, Albania. During January 2013 to June 2014, a total of 588 positive isolates were collected. Isolates were identified, tested for antimicrobial susceptibility and screened for ESBL production as per standard methods. The overall prevalence of ESBL-producing strains was 17.2%, 95%CI (14.3-20.4) were found to be positive for ESBL by phenotypic methods. Among the ESBL-producing strains for both *E. coli* and *Klebsiella*, high resistance rates were observed for ceftriaxone (90%), nalidixic acid (88.9%), trimethoprim-sulfamethoxazole (86.2%), Ceftazidime (81.8%), cefotaxime (80.0%), ciprofloxacin (72.7%), levofloxacin (70%) and aztreonam (61.4%). Except for cefoperazone, ESBL-producing isolates were significantly more resistant to other antibiotics compared to non-ESBL producing isolates ($p < 0.05$). Detection of ESBL-producing isolates and monitoring of drug resistance is necessary in clinical settings for proper infection control measures and disease management.

Key words: β -lactamases; *E. coli*, *Klebsiella*, specimen, resistance

Vol. 4 (3): 475 - 480 (2014)

ECOLOGICAL STATUS ASSESSMENT OF SHKODRA LAKE USING AQUATIC MACROPHYTES

Vilza Zeneli¹, Lefter Kashta²¹Department of Biology, FNS, University of Tirana, Albania;²Research Center for Flora and Fauna, FNS, University of Tirana, Albania;Email: m.vilza@hotmail.com

Received May, 2014; Accepted July, 2014

ABSTRACT

Macrophytes, or aquatic plants, are among the major groups of organisms that the Water Framework Directive (WFD) recommends that should be used in assessing the status of natural lakes. A survey of macrophyte composition and abundance at Shkodra lake was carried out during June 2013. Sampling was conducted along six transects selected within Albanian side of Shkodra lake. A total of 21 species were sampled and identified along all transects, from shore to water depth of 6m. *Potamogeton lucens*, *Potamogeton perfoliatus* and *Najas marina* were the most common macrophytes in the lake being found respectively at 62.8%, 55.2% and 30.4% of sampling points with vegetation in June 2013. Macrophyte index (MI), which reflect the nutrient status of a lake, was calculated and used as indicator of ecological status for Shkodra lake. The results indicate that the both sides of the lake, although differently, are impacted from human activity. The nutrient enrichment in northeastern side resulted to be “immense”, meanwhile in southwestern side the macrophyte index indicate “heavy” nutrient enrichment. The mean MI of Shkodra Lake (all transects investigated) that correlates with its total phosphorus concentration during circulation time, results 3.49 and indicates an “immense” nutrient load, which corresponds to eutrophic condition.

Keywords: macrophytes, macrophyte index, ecological status, Shkodra lake

Vol. 4 (3): 481 - 486 (2014)

THE EFFECTS OF URBANIZATION ON SOIL RESOURCES IN SITNICA RIVER BASIN, KOSOVO

Valbon Bytyqi¹¹*Department of Geography, FMNS, University of Prishtina, 10000, Prishtina, Kosovo;*Email: valbon.bytyqi@uni-pr.edu

Received May, 2014; Accepted July, 2014

ABSTRACT

Sitnica River basin lies mostly in Kosovo Plain where the most fertile soils in entire Kosovo are. In the plain, lands are characterized by high fertility, thus they have a great potential for agricultural development. The vicinity parts of the basin lies in the hilly mountainous areas where soils have low fertility. Sitnica River is characterized by good natural conditions, which has led to most densely populated area in Kosovo. Rapid extension of urban and rural settlements has made changes in land cover; agricultural lands are excluded from primary use, and agricultural capacity is reduced with increasing of settlements in lands with high quality. This area was faced with uncontrolled urbanization, which has led to the degradation of agricultural land and changes in river basin, where in some cases floods are caused or the flood's risk is increased. In this study, Sitnica River basin (Kosovo) will be treated in different ways, such as morphology and water flows, soil resources, land use changes and the paper will give a contribution towards sustainable urbanization of settlements in order to preserve soil resources. In the study, there will be used aerial images and maps of different years, census data, to treat the problems in the Sitnica River basin.

Keywords: land use, degradation, urbanization, Sitnica River basin, Kosovo.

Vol. 4 (3): 487 - 490 (2014)

OLEUROPEIN EXTRACTED FROM OLIVE LEAVES, AN EFFICIENT INHIBITOR AGAINST THE CORROSION OF METALS AND ALLOYS

Efrosini (Teli) Kokalari¹, Alketa Lame¹, Xhensila Greca¹, Albana Jano¹, Yllka Bilushi²¹Department of Chemistry, Faculty of Natural Sciences Tirana, Albania;²Universiteti "Ismail Qemali" Vlora, Albania;Email: efrosiniteli@yahoo.com;

Received May, 2014; Accepted July, 2014

ABSTRACT

Corrosion is a naturally occurring phenomenon commonly defined as deterioration of metal surfaces caused by the reaction with the surrounding environmental conditions. Corrosion can cause disastrous damage to metal and alloy structures causing economic consequences in many aspects of the life. There are several ways to prevent corrosion. The use of inhibitors for the control of corrosion of metals and alloys which are in contact with aggressive environment is one among the acceptable practices used to reduce or prevent corrosion. Though many synthetic compounds showed good anticorrosive activity, most of them are highly toxic to both, human beings and environmental. It is very important to choose cheap and safety handled compounds to be used as corrosion inhibitors. The aqueous extract of olive leaves represent a great inhibitive action against the corrosion of carbon steel in acidic media. The principal active component in olive leaf extract is oleuropein, a natural product of the secoiridoid group. Oleuropein is a heterosidic ester of elenolic diterpene and 3,4-dihydroxyphenylethanol, containing a molecule of glucose, the hydrolysis of which yields elenolic acid glucoside and hydroxytyrosol. Oleuropein from the olive leaves was obtained by aqueous extraction in temperature 60°C acidified with HCl 0.1M (pH=3), for four hours. The solution was stored at 4°C and in the dark. The product of extraction was analyzed with infrared (IR) spectroscopy, in order to define its chemical structure. Also we defined the yield, density, pH and melting point of the product. The product of extraction result to be oleuropein and we propose to use it as corrosion inhibitor.

Keywords: extraction, olive leaf, oleuropein, corrosion inhibitor.

Vol. 4 (3): 491 - 498 (2014)

MIGRATING CORROSION INHIBITOR AGAINST PREMATURE FAILURE OF REINFORCED CONCRETE CAUSED BY PENETRATION OF AGGRESSIVE ENVIRONMENT

Alketa Lame (Galo)¹, Efrosini Kokalari (Teli)¹, Albana Jano²¹ Department of Chemistry, Natural Science Faculty, Tirana University, Albania;² Faculty of Applied Sciences, Planetarium University of Tirana, Albania;Email: alketalame@yahoo.com

Received May, 2014; Accepted July, 2014

ABSTRACT

Most authors agreed that reinforcement corrosion is the most important cause of premature failure of reinforced concrete structure worldwide and generate a great research concern due to its effects on global economy. Inhibitors are added to concrete to improve its quality and integrity. In recent years the use of these inhibitors in producing high performance concrete has increased significantly as a result of aggressive environment. The report presents information related to corrosion protection method to extend the service life of reinforced concrete structures include amino alcohols accompanied with amino acid as migrate inhibitors. As (MCI) migration corrosion inhibitor was studied different concentrations of butanol-1 amin-2 refer 1g/L methionine. Such substances are selected in respect of their functional groups (aminic, carboxylic), electron-donor groups like aminic and alkylic groups, or electron-attractor groups (electrophile agents like carboxylic group and atoms with high electronegativity), as well as the effect of carbon-chain length. Materials under investigation are two types of low alloy carbon steel marked as: Steel 39, Steel 44 (usually applied to concrete as reinforcing bars). The corrosion media consists in sulfuric acid in presence of chloride ions, in form of NaCl (H_2SO_4 1M + Cl^- $10^{-3}M$). Potentiodynamic polarization method is used for inhibitor efficiency testing. Potentiodynamic polarization measurements showed that the presence of MCI in concentration ratio 12g/L butanol-1 amin-2 with 1g/L methionine, referring the corrosion protection of steel 39 and steel 44, presents protection efficiency respectively 86.21% and 88.37% classified as very good for this extreme aggressive conditions.

Keywords: MCI, amino-alcohol, amino acid, steel bars, Tafel polarization.

Vol. 4 (3): 499 - 504 (2014)

THE USAGE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN PROMOTING THE CONCEPT OF VOLUNTEERING

Violeta Vidaček-Hainš, Jozef Bushati, Alenka Benček

University of Zagreb, Faculty of Organization and Informatics in Varaždin, Croatia;

University of Shkodra 'Luigj Gurakuqi', Albania;

University of Zagreb, Faculty of Organization and Informatics in Varaždin, Croatia;

Email: vvidacek@foi.hr; jozef.bushati@gmail.com; albencek@foi.hr;

Received July, 2014; Accepted August, 2014

ABSTRACT

Student participation in local community projects is an important part of any students' experience and further career development. Most of the volunteering projects conducted by students are linked to underrepresented groups of people, which include national minority groups, people with disabilities, low social income, age, gender. The main goal of this research is to promote the concept of volunteering amongst University students with an emphasis on the usage of information and communication technology. This technology is used for educational purposes, communication with media and networking. Networking is based on usage of a web platform for networking with the *Big Blue Button* tool. The main purpose of this web platform is communication in the international environment as a part of a international student research symposium. A web platform has been developed for the main purpose of enabling networking of students' researches. The quality of student volunteering projects is evaluated from a sample of 120 college and high school students participating at different volunteering projects. The data collection has been assessed using the Likert and semantic differentia scales. According to the research results, volunteering projects are a good model for developing social and professional competences and networking in the international environment, enabling students to better prepare for the post-graduate labour market. Further researches to be focused at are exchanges of examples of good practice within the international environment.

Key words: Volunteering, ICT, Social skills, Professional competences

Vol. 4 (3): 505 - 512 (2014)

WAYS OF WATER RECUPERATION BY THE INDUSTRIAL METALLIC REMAINS

Petrit Kotori¹, Vladimir Kasemi²

¹University "Ismail Qemali" Vlora, Albania;

²Politechnic University Tirana, Albania;

E-mail: petri_kotori@yahoo.it

Received May, 2014; Accepted July, 2014

ABSTRACT

During all the laundering operation of the metallic machinery together with the solutions in the laundry there are also metallic elements carried away with the discharging water. The composition of this water and the remains found in it are very different. They are constantly increasing during each stage of this process. The galvanic discharges are often full of metallic remains or other organic or inorganic substances. The heavy presence of these presents difficulty in recuperating the metals. Besides in some other sectors of the industry having a series of operations till reaching a fine polished metallic surface of the pieces or the fitted parts in order to increase resistance from corrosion, there are also or a lot of taxed substances in the discharging water. Thus the presence of the industrial remedies above the norms and the recuperation of this water is a special concern of the modern time, which is based on the medial choose for touch a purpose. Ranging from the importance or dangers they represent "the metallic industrial remains in laundering" is the mänge goal of this survey.

Key words: Galvanic discharge, Metallic remain, Chromium. Zinc, Cooper,