ESTIMATION OF SNOW AND RAINFALL FOR HYDROLOGICAL ANALYSIS OF A MID-WINTER FLOODING EVENT IN WESTERN UNITED STATES

Cezar Kongoli[12], Yu Zhang[3], Zhengtao Cui[42], Robert J. Kuligowski[2]

[1]*Earth Science System Interdisciplinary Center (ESSIC), University of Maryland College Park, MD, USA;*
[2]*National Oceanic and Atmospheric Administration (NOAA), College Park, MD, USA;*
[3]*University of Texas at Arlington, Texas, USA;*
[4]*Len Technologies, Virginia, USA;*

Email: Cezar.Kongoli@noaa.gov;Yu.Zhang@uta.edu; Zhengtao. Cui@noaa.gov; Bob.Kuligowski@noaa.gov;

ABSTRACT

The overarching goal of this study is to evaluate the potential of multi-sensor snow and rainfall monitoring for hydrological analysis and simulations of flooding events triggered by rain-on-snow. The study focuses on a rain-on-snow event that occurred in early February 2017 in Western US which led to extreme flooding and ultimately dam failure. Snow water equivalent is estimated using a data assimilation system called SNOWDAS developed at the National Oceanic and Atmospheric Administration (NOAA) and used in the analysis of the event. Rainfall estimations from a blended radar- and gauge-based product are used as inputs along with analyzed near-surface air temperature to drive a coupled snow-soil moisture accounting and routing model to simulate discharge at the basin outlet. Satellite-based rainfall from geostationary satellites is also estimated and compared with gauge measurements. Hydrologic simulations conducted during January-March and multi-sensor rainfall estimations showed that the maximum discharge at the basin outlet occurred in early February, coinciding with extreme flooding and light-to-moderate but sustained rain accumulations. Satellite and gauge data confirmed moderate daily rainfall accumulations followed by extensive snowmelt confirmed by SNOWDAS-modeled snow water equivalent changes. Modeled snow water equivalent changes over a two-day period preceding the extreme flooding indicated that extensive snowmelt runoff occurred throughout the basin during the second day whereas during the first day rainfall and potential snowmelt were retained in the snowpack over a large part of the basin. This work demonstrates that light to moderate but sustained amounts of rainfall over snow cover can lead to significant runoff and extreme flooding situations as well as the need to understand distributed snowmelt/runoff mechanisms for improved forecasting of rain-on-snow events.

Key words: rain-on-snow, hydrological simulations, satellite remote sensing, snow water equivalent, rainfall

_____

AN EXPERIMENTAL INVESTIGATION OF BIOGAS PURIFICATION WITH GRANULATED SLAG UNDER DIFFERENT PRESSURES

Mustafa Karagöz[1*], Nuri Tunç[2], Burak Çiftçi[1], Emrah Deniz[3]

[1*]*TOBB Tech. Sciences Vocational School, Karabuk University, Turkey;*
[2]*Graduate School of Natural & Applied Sciences, Dep. of Mechanical Engineering, Karabuk University, Turkey;*
[3]*Faculty of Engineering, Department of Mechanical Engineering, Karabuk University, Turkey;*

Email: *mustafakaragoz@karabuk.edu.tr; burakciftci@karabuk.edu.tr; tunckar.nt@gmail.com;
edeniz@karabuk.edu.tr;

ABSTRACT

Biogas, with its production and energy potential, is an important renewable energy source for the developing renewable energy market. Biogas is a type of fuel that is produced from the biochemical degradation of biomass. It has a density similar to oxygen and before the biogas can be used, it is necessary to remove the contaminant gas content. Biogas is a gas obtained by degradation of biological wastes in an anaerobic environment. The contaminants in the biogas can decrease the lower heating value of the fuel and also cause corrosion and rust in the equipment and components used. Therefore, before using biogas, it is necessary to remove contaminants in it. In this study, biogas has been produced from animal waste by co-fermentation method. In order to purify the produced biogas from the pollutant gases, the effect of granular slag (an iron steel plant waste) in H_2S removal from the biogas, has been investigated experimentally for different pressures. Experiment results gave an average amount of biogas production of 1.6 m^3 / day and methane (CH_4) content reaching up to 71%. At the end of the process, it was determined that the 278 ppm H_2S value of the biogas measured before entering the purification tower with slag material was purified with a ratio of 31% and decreased to 192 ppm without significant loss of methane.

Key words: Biogas, Purification, Pressure Effect, Granulated Slug.

_____

THE STRUCTURE OF FORESTS AT UPPER CHONA OIL-GAS CONDENSATE MINE, IRKUTSK REGION, RUSSIA

Alexander Sizykh[1][*], Alexey Shekhovtsov[2]

[1][*]*Institute of Plant Physiology and Biochemistry, Siberian Branch, Russian Academy of Sciences, 664033 Irkutsk, Lermontova str., 132, Russia;*
[2]*Institute of Geography, Siberian Branch, Russian Academy of Sciences, 664033, Irkutsk, Ulanbatorskaya str., 1, Russia;*

[*]Email: alexander.sizykh@gmail.com

ABSTRACT

Studies of vegetation in the basin of the upper current of the Chona R. (a tributary of the Lena R., Irkutsk Region, East Siberia, Russia) were performed within activities on engineering ecology survey on the territory of Upper Chona oil-gas condensate mine (hereinafter – mine). The aim of these activities was to reveal and to estimate the modern state, injury and development forecast of the forests (and of the vegetation as a whole) within the mine since 1994, year of survey start. For this aim, a detailed analysis of available (archives) materials (forests taxation maps and others) was performed. Characteristics of structural-dynamic organization of forest communities in mine surrounding area and at the sites of wholes of different years of conservation reflects the vector of forests reconstitution. The conditions of ecotopes of phytocenoses for each concrete hole were taken into account. Primary forecast of probable vegetation destructions at further increase of technogenic impact is shown as well.

Key words: structure of forests, oil-gas condensate mine, Irkutsk region

_____

THE REMOVAL OF CHROMIUM FROM AQUEOUS SOLUTIONS USING AN INDUSTRIAL WASTE MATERIAL

Nur Eda Evliyaogullari[1], Muhammed Kamil Oden[2], Sezen Kucukcongar[1*]

[1] *Selcuk University, Engineering Faculty, Department of Environmental Engineering, Konya, Turkey;*
[2] *Selcuk University, Sarayonu V.H.S., Department of Environmental Protection and Control, Konya, Turkey;*

*E-mail: ssari@selcuk.edu.tr;

ABSTRACT

Heavy metals have toxic effects for aquatic environment and living organisms, therefore the importance for heavy metal removals from aqueous solutions increase recently. Various removal methods of heavy metals from wastewaters were used such as chemical oxidation, adsorption, membrane filtration, UV treatment etc. Adsorption process is a favorable method because of its low cost and efficiency. In this study an industrial waste material produced in boron enrichment process for concentrate colemanite production was used as an adsorbent for chromium removal from aqueous solution. The influence of adsorbent mass, pH, contact time and initial chromium concentration on the adsorption efficiency has been investigated. Maximum chromium removal was obtained as 73% at optimum conditions (adsorbent doze=2.0 g/L; shaking speed=200 rpm; original pH=5.0; contact time=30 minutes and initial chromium concentration=20 mg/L). The adsorption isotherm of waste material was fitted by Freundlich adsorption isotherm and R^2 value of the isotherm was determined as 0.83.

Key words: Industrial waste material; chromium; adsorption.

_____

USE OF NATURAL PLANTS AS GREEN CORROSION INHIBITORS AN OVERVIEW

Arlinda Çaçi[1], Jolda Zotaj[1], Alketa Lame[2], Efrosini Kokalari[2], Sadik Cenolli[2]

[1]*Faculty of Natural Sciences, University of Tirana,Tirana, Albania;*
[2]*University of Tirana, Faculty of Natural Sciences, Chemistry Department, Tirana, Albania;*

E-mail: arlindacaci@yahoo.com

ABSTRACT

Corrosion is the destructive phenomenon which affects almost all metals. Iron is the most widely used metal and one of the first for which corrosion was encountered. Corrosion can cause disastrous damage to metal and alloy structures causing economic consequences in terms of repair, replacement, product losses, safety and environmental pollution. Among the various methods to avoid or prevent destruction or degradation of metal surface, the corrosion inhibitor is one of the best know methods of corrosion protection and one of the most useful on the industry. The presence of N, S and O in organic corrosion inhibitors reported excellent inhibition efficiency. But, unfortunately they have the undesired toxic effect on environment. The environmental toxicity of organic corrosion inhibitors has prompted the search for green corrosion inhibitors. Green inhibitors are biodegradable, environmentally friendly and ecologically acceptable; do not contain heavy metals or other toxic compounds. Green inhibitors extracted from plants and plant products are inexpensive, readily available and renewable. Also, plants and natural product extracts have been posed to achieve the target of employing as a cheap, environmentally acceptable, abundant source, readily available and effective molecules having very high inhibition efficiency and low or zero environmental impact. As green inhibitors we have used oleuropine extracted by olive leaves, piperine extracted by black pepper, quercetin extracted by red onion. The corrosion inhibition efficiency was investigated using potentiodynamic polarization measurements. Corrosion inhibition efficiency of these green inhibitors was tested for iron B500, in acidic media.

Key words: Green inhibitor, corrosion, plant extracts.

_____

THE IMPACT OF GOOD URBAN SOLID WASTE MANAGEMENT IN ALBANIA`S ECONOMIC DEVELOPMENT

Flora Merko

Aleksander Moisiu University, Department of Economics, Durres, Albania;

E-mail: floramerko@yahoo.it;

ABSTRACT

The rising solid waste generation and the change of solid waste composition to higher volumes of packaging materials have created concerning health and environmental threats, especially in developing cities. Human activities create waste, and the ways that waste is handled, stored, collected, and disposed of, can pose risks to the environment and to public health. In many countries, solid waste management has become a top priority. It is a costly and complex process for local governments, but it is so essential to the health, environment, and quality of life of the people. Rapid urbanization, new economic activity, and population growth place multiple pressures on solid waste management systems. When basic services such as waste collection and disposal are inadequate, the economic, environmental, and human health effects disproportionally affect the urban poor. Improving solid waste management provides a cleaner environment including in poor and marginalized areas of cities and improves livability for all city residents. A cleaner city helps provide a more attractive environment for investment and tourism which, in turn, improves a city's economic competitiveness, creating jobs and new business opportunities for local entrepreneurs. Solid waste management can also be linked to the development of new sources of energy, helping tackle climate change. This paper addresses the problem by focusing on Albania. Waste management in Albania is at a very low level. With systems collection of solid waste are equipped only cities, but not rural areas. This study is based on poor management of solid waste in Albania considering that the potentials are great for carrying out this activity. The paper emphasizes: relationship between the economic growth of the cities and the level of the solid urban wastes; pollution as a primary problem; solid waste as an example of negative externalities; the waste management process by local administrations in Albania. The paper gives data for management of the solid urban wastes during recent years, especially focused in last three years, according to a survey made by Albania Institute of Statistics (INSTAT) in 2016 with the companies of waste management activity.

Keywords: Economic growth, negative externalities, management of SUW, 3Rs.

_____

ISSUES AND PROBLEMS OF SINOP MUNICIPAL SOLID WASTE MANAGEMENT

Oylum Gokkurt BAKI*

*Sinop University, Engineering and Architecture Faculty, Environmental Engineering Department, 57000, Sinop, Turkey;

*Email: oylumbaki@gmail.com;

ABSTRACTS

Nowadays, one of the most important problems faced by urban areas is increasing amount of the solid waste and also the discorrect applications of municipal solid waste management. Besides, particular problems in the most of urban areas are the ineffective regulations, the lack of knowledge in organization and planning and financial constraints especially for collection and transport system. These most important environmental problems negatively affect the human health and the management of the solid wastes and these are currently the biggest problems that the municipalities encounter. In general, the study evaluates urban solid waste management applications for southest part of the Black Sea, Sinop Peninsula. In this study, first of all, it is presented the important issues that must be addressed in order to achieve success and created recommendation plans for the elimination of the current problems existing in the solid waste management system. Generally, the solid waste management's main problem is the current policies and regulations. When we think about Sinop Province, the problems of municipal waste management system are the lack of collection and transport system, container locations and trained staff for managing the waste and an environmentally-conscious public. For a successful and sustainable solid waste management in Sinop, it should be required a program that will integrate all the economic, social, and environmental factors together. Thus, a more sustainable waste management method would be implemented.

Key words: municipal solid waste, solid waste management, Sinop, sustainability

_____

THE EFFECTS OF CHEMICAL CLEANING APPLICATIONS ON THE USEFUL LIFE OF POLYAMIDE MEMBRANES IN REVERSE OSMOSIS SYSTEMS

Ertugrul Esmeray[1]*, Mustafa Yılmaz[1]

[1]*Karabuk University, Engineering Faculty, Environmental Engineering, Karabuk, Turkey;*

*Email: eesmeray@karabuk.edu.tr

ABSTRACT

The Reverse Osmosis systems which are widely used in seawater and brackish water may have economically advantages but if it is used efficiently during the working of useful membranes life. The organic and the inorganic contaminants which is in the reverse osmosis feed flow occasionally cause the plug of the surface of the membranes. It's encountered soon or later this situation effects the system of the reverse osmosis productivity negatively. The applications which are done in a better way of the pre-treatment and pre-conditioning is not enough to overcome the plug but put back the formation process. It's necessary to clean the membranes with using suitable methods and suitable chemicals to cure the plug. In the present study, it's aimed to evaluate the negative effects of chemicals using in order to clean polyamide membranes and cleaning procedures. Through the aim of the present study, the membranes problems that are inorganic fouling and biofilms cleaning procedures involving polyamide membranes limited values of chemicals are dealt together. As results of evaluations, it's understood that for necessity of efficient cleaning acidic and alkaline chemicals take an important part cause shortening the efficient usage life.

Keywords: Reverse Osmosis, Polyamid Membran, Chemical Cleaning, Organic Contaminants, Biofilm, Useful life, Membrane Deformation, Cleaning Chemicals

_____

THE SOCIAL – ECONOMIC CONTRIBUTIONS OF COMMUNITY FORESTS TO RURAL HOUSEHOLD'S INCOME – A CASE OF ULZA ADMINISTRATIVE UNIT

Albora Kacani[1*] Leonidha Peri[2]

[1*]*Agricultural University of Tirana, Faculty of Forestry Sciences, 1029 Tirana, Albania;*
[2]*Agricultural University of Tirana, Faculty of Forestry Sciences, 1029 Tirana, Albania;*

E-mail: *alborakacani@gmail.com; leonidha.peri@ubt.edu.al;

ABSTRACT

Over the years, Albanian governments supported also by various international organizations have taken courageous steps toward forest decentralization from central to local government. The process started in 1996 and was intensified in 2016 where 79.5% of forests were transferred to 61 Local Government Units. The philosophy behind this process is the transfer of forest management responsibilities to people who live near them. In Albania, historically the forests close to villages are used by rural families to meet their needs. Although these reforms have been implemented in our country for about 20 years, there is a lack of studies on the socio-economic consequences of forest decentralization as well as on the contribution of forests to household's incomes. This case study examines the income distribution of household in Ulëz administrative unit as well as assesses quantitatively the direct economic contribution of community forests to rural households. Primary data were collected through 37 semi-structured interviews with households randomly selected. Preliminary results show that forests contribute approximately 10% in the gross incomes of interviewed families. The biggest contribution in the household income comes from off-farm activities. While for describing the effects of forests income in the distribution of incomes and inequality between the two classes Gini coefficient and Lorenz curve were used.

Key words: decentralization, community forests, income distribution, forest income, inequality

_____

PEAR PSYLLA (CACOPSYLLA PYRICOLA F.) DISTRIBUTION IN SOME CULTIVARS OF PEAR CULTIVATED IN THE LOCALITY OF PRISHTINA

Fadil Musa[1], Gyrner Murati[1]*, Ahmet Musa[2]

[1]*Faculty of Agriculture and Veterinary, University "Hasan Prishtina", Prishtina, Kosovo;*
[2]*Faculty of Agribusiness, University "Haxhi Zeka", Peja, Kosovo;*

*Corresponding author: gmurati@hotmail.com

ABSTRACT

Pear psylla, *Cacopsylla pyricola* F. (*Homoptera*, *Psyllidae*), is one of the key insect pests of the pear that can be found in pear production worldwide, depending on the crop and climatic condition. Pear psylla may occur in large colonies on new growth, the base of buds, or the undersides of mature leaves. This pest damage the plants directly by sucking plant sap from the plant tissues and indirectly as a vector of different plant diseases, especially bacteria and pear decline, caused by mycoplasmas. The aim of this paper was to investigate the distribution of pear psylla in five pear cultivars cultivated in locality of Prishtina. The two year experiment (2015 and 2016) was set up in three pear orchards located in the village Barilevo, municipality of Prishtina, while the experiment design was set up according to randomized Fisher blocks in three replications. Sampling methods employed for pear psylla monitoring was visual inspection of spurs and foliage for nymphs and eggs and use of beat tray to monitor adults. The samples, later on, for the purpose of processing were sent to the Plant Protection Laboratory of the Phytosanitary Corporation "Sara&Meti" which is accredited according to ISO 17025. According to the ANOVA there were shown to exist statistical significant differences with regard to the number of pear psylla depending to the pear cultivars and different localities were the pear was cultivated.

Key words: Pear, *Cacopsylla pyri*, cultivar, ANOVA

_____

RECOVERY OF SUGAR INDUSTRY WASTE-CARBONATION SLUDGE WITH INDUSTRIAL SYMBIOSIS

Fatma Didem Tunçez

Energy Management Division,
KTO Karatay University, Akabe Alaaddin Kap Str. No: 130 42020 Karatay, Konya, Turkey;

Email: didem.tuncez@karatay.edu.tr;

ABSTRACT

One of the most important wastes produced during the production of sugar is the carbonation sludge. Carbonated sludge, which is very high in quantity and is a storage problem, causes environmental pollution. Many plants which use calcium carbonate as their raw material meet needs from natural sources. The depleted natural resources give priority to the concept of sustainability. One of the most important tools of the concept of sustainability is industrial symbiosis. In this study, it was revealed that carbonation sludge which emerged as waste during sugar production could be used as raw material in different industrial sectors.

Key words: Sustainability, sugar industry, carbonation-sludge, industrial symbiosis.

INVESTIGATION OF THE SPREAD OF PEAR RUST (*Gymnosporangium sabinae*) IN PEAR CULTIVATED IN REGION OF PRISHTINA

Fadil Musa[1], Saranda Musa[1]*

[1]**Faculty of Agriculture and Veterinary, University "Hasan Prishtina", Prishtina, Kosovo;*

*Corresponding author: sarandamusa1@gmail.com;

ABSTRACT

Pear rust is a disease caused by the rust fungus *Gymnosporangium sabinae*, which causes bright orange spots on the upper surfaces of pear leaves in summer and early autumn. In Kosovo, this disease appears every year and poses a serious threat to pear production. The purpose of this study was to investigate the spread of the disease in five pear cultivars (Vilijam, Murgesha, Santa Maria, Krasanka, Abbate Fetel) cultivated in locality of Prishtina. For these investigations, during vegetation period of 2015-2016 in a private orchard with area of 10 ha, split in some blocks with a great care were taken leaves of pear leaves, of all cultivars, with signs of disease caused by the pathogen *Gymnosporangium sabinae*. The samples for analysis were taken every week from the beginning of May until the end of September, while the results were expressed in every 10 days as a sampling date. To determine the presence of the disease the samples were brought to the laboratory of Plant Protection at Phytosanitary Corporation Sara&Meti in Prishtina and tested on nutrition media (nutrition agar and potato dextrose agar). Based on the results obtained regarding the presence of the disease it was shown that the cultivar Vilijam was more susceptible against pear rust while the cultivar Krasanka was less susceptible and less affected by this disease. After statistical analysis of the research results through analysis of variance (ANOVA), statistical differences were observed at different levels of significances regarding the pear cultivars (Factor A), locality where the pear was cultivated (Factor B), the type of nutrition media (Factor C) and their interactions (AxB), (AxC), (BxC) and (AxBxC).

Keywords: Pear rust, susceptibility, cultivar, nutrition media

_____

INFLUENCE OF SEX ON THE BLOOD PARAMETERS OF OHRID ROACH DURING THE SPAWNING SEASON

Blagoja Trajchevski[1*], Suzana Dinevska-Kjovkarovska[2], Maja Jordanova[3], Trajce Talevski[1]

[1*]*Hydrobiological Institute- Ohrid, Department of Cyprinid Fauna, Ohrid, Republic of Macedonia;*
[2]*University "St Cyril and Methodius", Faculty of Natural Sciences and Mathematics, Institute of Biology Department of Physiology and Biochemistry, Skopje, Republic of Macedonia;*
[3]*University "St Cyril and Methodius", Faculty of Natural Sciences and Mathematics, Institute of Biology, Department of Citology, Histology and Embryology, Skopje, Republic of Macedonia;*

*Email: blagoja.t@hio.edu.mk;

ABSTRACT

The aim of this study was to investigate the differences in the haematological parameters between male and female Ohrid Roach (*Rutilus ohridanus* Karaman, 1924), from Lake Ohrid, during the spawning season. The results showed that males have higher values than females, with statistically significant difference for the erythrocyte count, haemoglobin concentration, hematocrit and mean cell volume. These findings demonstrate that males have higher metabolic rate during this period, and that their blood physiology is influenced by the increased physical activity and very likely by the appropriate sex hormones.

Keywords: Ohrid Roach, blood, sex, Lake Ohrid

International Journal of Ecosystems and Ecology Sciences (IJEES)
                             Abstracts
Volume 7, issue 4, 2017

_____

DISTRIBUTION, ECOLOGY AND MORPHOLOGICAL VARIABILITY OF CHARA GLOBULARIS THUILLIER, 1799 FROM LAKE OHRID

Sonja Trajanovska[1], Marina Talevska[1], Alma Imeri[2], Biljana Budzakoska Gjoreska[3], Sasho Trajanovski[3]

[1]*Department of hydrobotany, PSI Hydrobiological Institute Ohrid, Macedonia;*
[2]*Agricultural University of Tirana, Koder-Kamez, 1029, Tirana, Albania;*
[3]*Department of benthic fauna, PSI Hydrobiological Institute Ohrid, Macedonia;*

E-mail: sonjat@hio.edu.mk;

ABSTRACT

Lake Ohrid as the oldest and one of the deepest lakes in Europe, is also known as an aquatic ecosystem which is to be characterized as richest in Charophyta among the ones located in the Balkan Peninsula. Based on previous research, but especially on the present one, Chara globularis takes an important part of the entire Charophyta flora of the lake which is inhabited by 19 Charophyta species in total. The importance of this species is due to its high distribution and abundance which make it respectable contributor in the maintenance of Lake's general metabolism and balance. The most recent investigation on the Charophyta flora of Lake Ohrid have pointed out that there are differences in the density and distribution of this species on different sampling sites. In the same time the species characterizes morphological variability in different parts of the habitus of this species. Regarding the distribution, Chara globularis has been registered in 21 out of 59 sampling localities which have been subject of our investigations.

Key words: Lake Ohrid, Chara globularis, distribution, ecology, morphological variability

ECOLOGICAL RESEARCH OF ENDEMIC GASTROPOD SPECIES *VALVATA HIRSUTECOSTATA* FROM LAKE OHRID

Biljana Budzakoska Gjoreska[1], Sasho Trajanovski[1], Sonja Trajanovska[2]

[1]Department of benthic fauna, PSI Hydrobiological Institute Ohrid, Macedonia;
[2]Department of hydrobotany, PSI Hydrobiological Institute Ohrid, Macedonia;

Email: biljanab@hio.edu.mk;

ABSTRACT

Valvata hirsutecostata Polinski, 1929 is one of the many endemic species from Ohrid Lake Gastropods (subclass Prosobranchia). The main goal in our research was to follow the distribution and density of this endemic gastropod species. For that purpose we have undertaken sampling of benthic material from 6 different depth points using the methods of transects, on several different sites along the littoral region from Lake Ohrid. The results have pointed out to the following: In the locality Park, Kaneo and Pristanishte *Valvata hirsutecostata* was recorded only at 20 m depth on the muddy bottom covered with empty shells (shell zone). Specimens of *Valvata hirsutecostata* have not been recorded in other investigated depth points, where the habitat was sandy-stone, sandy-muddy, sandy bottom, submerse vegetation, muddy bottom, muddy bottom with vegetation and *Chara* belts.

Key words: Lake Ohrid, *Valvata hirsutecostata*, ecological research.

15

_____

CHALLENGES OF WASTE MANAGEMENT IN CITY OF SKOPJE

Zoran Sapuric[1*], Filip Ivanovski[1], Dame Dimitrovski[2]

[1]*University American College, Skopje, Macedonia,* [2] *University St. Cyril and Methodius, Skopje, Macedonia;*

*Email: sazoran@hotmail.com;

ABSTRACT

Waste is one of the biggest environmental problems in the city of Skopje. In the same time it is a big future challenge, considering that waste problems could be transferred into benefits by using its potentials. Skopje is a capital and the largest city of Macedonia. Despites some improvement in waste management, particularly in a part of waste infrastructure, the situation is far from satisfactory. The level of primary municipal waste selection and collection is still very low and a big portion of waste is collected as a mix waste stream. The system of sustainable waste management is not established yet. This produces a slow growth of recycling and other forms of recovery. In the area of commercial waste, the conditions in terms of primary waste selection and collection are slightly better. However the most portion of waste ends to the landfills without a pretreatment. Additionally private and informal sectors are not included in the system. The determined objectives from the strategic and planning documents and regulations adopted by central and local government are not realized. In the future it should be undertaken a wide set of short term, midterm and long term measures and activities for establishing sustainable waste management. A main goal of this paper is to analyze and to research the various aspects of waste management in Skopje and to give some recommendations for its improvement.

Key words: waste, primary selection, recycling, management, challenge.

ALEXITHYMIA DIFFERENCES AND THE THEORY OF MIND AMONG CHILDREN WITH NURSING CAREERS PARENTS

Hamed Noori[1*], Sasan Navkhasi[2], Jalil Abbasi[3], Samira Rouhi Safaie[2], Safoura Khubdast[3], Sara Rouhi[4], Masoomeh Mahjour[4]

[1*]*Department of Health Psychology, Kish International Branch, Islamic Azad University, Kish, Iran.*
[2] *Faculty of Nursing and Midwifery, Sanandaj Branch, Islamic Azad University, Sanandaj, Iran.*
[3] *Faculty of Nursing and Midwifery, Ilam University of Medical Sciences, Ilam, Iran.*
[4] *Tohid Hospital, Kurdistan University of Medical Sciences, Sanandaj, Iran.*

Email: Sako5652@gmail.com;

ABSTRACT

Different studies have presented various results on Alexithymia and Theory of Mind in both women and men. Accordingly, the purpose of this study is to determine differences of alexithymia and theory of mind among Children survivors in the Kurdistan's among children with nursing careers parents. Therefore, 284 nurses (123 boys and 161 girls) were chosen among children with nursing careers parents located in hospital sanandaj in 2016. Then the respondents completed the Toronto Alexithymia and Mind Reading through Eyes questionnaires. Descriptive Statistical Method and Multi-Variate Variance Analysis were used to analyze the data. Results of the research showed that the rates of theory of mind and externally orientated thinking were different in both genders. In other words, survival boys showed higher levels of externally orientated thinking and lower levels of theory of mind compared to survival girls.

Key words: Theory of Mind, Alexithymia, Externally Oriented Thinking, gender, nursing, children, parents.

17

_____

THE EFFECT OF COGNITIVE BEHAVIORAL INTERVENTION ON IRRATIONAL BELIEFS PROFESSIONAL VOLLEYBALL ADOLESCENT BOYS

Mitra Rezvani Dehaghani[1], Afsaneh Sanatkaran[2*], Seyyed Mohieldin Bahari[2]

[1]*Department of Sport Psychology, Karaj Branch, Islamic Azad University, Alborz, Iran;*
[2*]*Department of Physical Education and Sports Science, Karaj Branch, Islamic Azad University, Alborz, Iran;*

*Email: Sanatkaran@kiau.ac.ir ;

ABSTRACT

The aim of the present study was investigating the effect of cognitive behavioral intervention on irrational beliefs of professional lean Volleyball boy players. The statistical population of this study was all professional Volleyball men players of Alborz province in youth (teenager) age range (the 15 to 18 age range). At 2016(1396), 30 athletes present at training election camps of national completions as sample were accessible that were randomly and target selected in tow experimental (n=15) and control (n=15) groups. Jones Irrational believes test is used at toot in this research. The experimental group in 8 sessions consisted 45 minutes (twice a week) during 2 months: were under education and cognitive behavioral intervention. The program based on compounding Elis & Bake irrational beliefs change sample consisted acquaintance with irrational and inefficient thoughts, negative automatic thoughts, the way of irrational thought, using cognitive techniques such as: (A-B-C), downward arrow and analyzing benefit and loss, challenging norms, investigating infrastructural belief about concerns and changing concerns into foresights and negative anticipation test, cognitive restructuring and substituting positive thoughts using daily thoughts registration form, with mental imagination and also effective methods such as deep abdominal breathing (centering). The data were analyzed using the Tow-factor 2*2 analysis test (ANOVA), by frequent measurement in %95 confidence level. The results showed that the cognitive behavioral intervention had a significant effect on reduction and improvement of irrational belief (ooo / op<) and need for approval subscales and support others, self-high expectation, willingness to self-blame, reaction to failure, emotional irresponsibility, high concern with anxiety, problem avoidance, dependency, insolvency against change and perfectionism (ooo/op<). So, it's suggested to utilize cognitive behavioral intervention to reduce and improve irrational belief in professional teen Volleyball player boys training camps.

Key word: cognitive -behavioral, irrational belief, boys, teenagers, Volleyball.

_____

CLINICAL SPECTRUM OF INFECTIOUS MONONUCLEOSIS IN CHILDREN

Elda Skenderi, Gjeorgjina Kuli-Lito

Pediatric Hospital, University Hospital Center "Mother Tereza" Tirana Albania;
University Hospital Center "Mother Tereza" Tirana Albania;

Email: elda_skenderi@yahoo.com; gkuli_lito@gmail.com;

ABSTRACT

Infectious Mononucleosis, the syndrome characterized by a classic triad of fever, sore throat and lymphadenopathy is most commonly caused by Epstein-Barr virus. Primary infection is usually asymptomatic or produce an acute illness that is often not recognized as being due to EBV. We sought to explore the clinical spectrum of Infectious Mononucleosis in Albanian children, so we conducted a retrospective study of a 5 year period (2010- 2014), where were included all children aged 0-14 years hospitalized in the Pediatric Infectious Disease Ward of the University Medical Center "Mother Teresa" diagnosed as having AIM based on a positive serology for immunoglobulin M viral capsid antigen. Clinical, demographic parameters and laboratory results were extracted from hospitalization records. In the typical form of IM are classified all the cases presented with fever, pharyngitis and lymphadenopathy; in the atypical form are classified all other cases. Of the 107 children with AIM 67 (63%) presented the typical clinical form of IM, 40 (37%) presented the atypical clinical form. In the age group 0-2y 44% were in atypical form and 56% in typical form; in the age group 2-6y 43% were in atypical form and 57% in typical form; in the age group 6-14y 26% were in atypical form and 74% in typical form. Mean age of the atypical form is 4.9years and mean age of the typical form is 5.7years. Mean value of white blood cells in typical form is 16,843cells/ml, in atypical form is 15,730cells/ml. Mean duration of fever in atypical form is 8.25days, in typical form is 7.6days. Mean of hospitalization in typical form is 7.5days, in atypical form is 7.1days. The risk of developing Infectious Mononucleosis after primary EBV infection correlates with age of the patient, younger children are usually asymptomatic or moderately ill with a partial Infectious Mononucleosis syndrome, although classic IM can occur in this age group.

Keywords: Infectious Mononucleosis, EBvirus, typical form, atypical form, hospitalization.

_____

LYMPHADENOPATHY AS AN ESSENTIAL SIGN OF INFECTIOUS MONONUCLEOSIS

Elda Skenderi, Gjeorgjina Kuli-Lito

Pediatric Hospital, University Hospital Center "Mother Tereza" Tirana Albania;
University Hospital Center "Mother Tereza" Tirana Albania;

Email: elda_skenderi@yahoo.com; gkuli_lito@gmail.com;

ABSTRACT

Infectious Mononucleosis is the best known clinical syndrome caused by Epstein-Barr virus. EBV infection is characterized by a vigorous humoral and cellular immune response to rapidly proliferating EBV- infected B cells, which results in lymphadenopathy and other signs and symptoms of Infectious Mononucleosis. As lymphadenopathy characterizes IM we studied its anatomic location and age distribution in children. 107 children aged 0-14 years were included in the study. All cases were hospitalized in the Pediatric Infectious Diseases Ward of the University Medical Center "Mother Teresa" during 2010-2014, diagnosed upon a positive serology for immunoglobulin M viral capsid antigen. Clinical and laboratory results were extracted from medical records. 62(57%) cases presented cervical lymphadenopathy, 26(24%) cases presented generalized lymphadenopathy. Cervical lymphadenopathy: 9% of cases are in the age-group 0-2y, 64% in the age-group 2-6y and 27% in the age-group 6-14y. Generalized lymphadenopathy: 19% of cases are in the age-group 0-2y, 16% in the age-group 2-6y and 65% in the age-group 6-14y. Median age of cervical lymphadenopathy is 5.1years, median age of generalized lymphadenopathy is 7.1years. In generalized lymphadenopathy 62% of cases presented hepatomegaly and 54% presented splenomegaly; in cervical lymphadenopathy 12% of cases presented hepatomegaly and 32% presented splenomegaly. In generalized lymphadenopathy 81% of cases had lymphocytes level >60%; in cervical lymphadenopathy 51% of cases had lymphocytes level >60%. Lymphadenopathy is an essential sign of Infectious Mononucleosis. Generalized lymphadenopathy is more characteristic in the advancing age and is a sign of severity of the disease.

Keywords: Infectious Mononucleosis, cervical lymphadenopathy, generalized lymphadenopathy, EB virus, infection.

_____

IN-SITU MEASUREMENT OF NATURAL RADIOACTIVITY IN PHOSPHOGYPSUM DISPOSAL SITE IN KOSOVO

Erjon Spahiu[1,*], Gerti Xhixha[1], Merita Kaçeli Xhixha[2], Fadil Hasani[3]

[1]*University of Tirana, Faculty of Natural Sciences, Department of Physics, Tirana, Albania;*
[2]*University "Aleksandër Moisiu", Faculty of Professional Studies, Department of Engineering Sciences, Durrës, Albania;*
[3]*Kosovo Agency for Radiation Protection and Nuclear Safety (KARPNS), Prishtinë, Kosovo;*

*E-mail: erjon.spahiu@fshn.edu.al;

ABSTRACT

The phosphate fertilizer industry, during the phosphoric acid production, generates typically huge amounts of phosphogypsum. During this process, is already known that ^{226}Ra is concentrated in posphogypsum residues. The former phosphate fertilizer industry in Kosovo has generated in years, approximately $3 \cdot 10^5$ tons of phosphogypsum residues disposed in the Mitrovica industrial park. In front of the implementation of the new European Union basic safety standard directive, processes involving naturally occurring radioactive materials (NORM) should be the controlled for (a) the radiation protection monitoring of workers and population and (b) the characterization of such by-products/wastes for recycling. Therefore, this study aims to investigate the use of in-situ measurements as a technique for quick and reliable low cost screening purposes. The full spectrum analysis (FSA) method is checked too for its reliability in the conditions when secular disequilibrium exists in ^{238}U and ^{232}Th decay chains. The results are used to calculate the gamma dose rate and discuss the recycling of this residue in agriculture and construction industry.

Keywords: NORM, phosphogypsum, natural radioactivity, gamma-ray spectrometry, NaI(Tl) detector, dose rate

_____

THE EVALUATION OF INSOLATION INDEXES IN SOME REGIONS OF ALBANIA

Andi Mankolli[1], Hysen Mankolli[23]

[1]*Department of Physics, University of Illinois at Urbana-Champaign, USA;*
[2]*Environment Health Association, Albania;*
[3]*The ESSIC Business Office, ID: 13200 consulting project, Maryland University, USA;*

Email: andimankolli@yahoo.com; hysenmankolli@yahoo.com;

ABSTRACT

Eco climatic indicators have a physical nature and find their expression in special meteorological elements such as: sun light, temperatures, rain, air moisture etc. Evaluation of lighting accepted by FAO(1985), based on the active and potential radiation report gives the following classification: lighting of a value < 0.6 of l/L is low, lighting of a value 0.6-0.8 of l/L is average, lighting of a value > 0.8 of l/L is high. Eco-climatic indicator of sun light is provided on the basis of real measurements carried out in meteorological stations. These indicators have been measured for a period including many years. Evaluation of three micro zones of Voskopoje, Korçe and Sheqeras under study about the indicator of sun light results as follows: The quantity of sun light in Voskopoje micro zone with 2413.6 annual hours, with its minimum in December with 88 hours, and its maximum in July with 313.8 hours. l/L proportion is evaluated with 0.55. The quantity of sun light in Korçe micro zone with 2329.3 annual hours, with its minimum in December with 68.5 hours, and its maximum in July with 284.9 hours. l/L proportion is evaluated with 0.53. The quantity of sun light in Sheqeras micro zone with 2220.8 annual hours, with its minimum in December with 63.8 hours, and its maximum in July with 281.9 hours. l/L proportion is evaluated with 0.50. In conclusion, the evaluation according to FAO model of micro zones under study about the indicator of sun light should be taken into consideration for the agro climatic regionalization of cultivated plants.

Key words: quantity, sun light FAO model, Korçe micro, Albania

_____

MODELING AND FORECASTING OF LOG PRODUCTION IN TURKEY

Nadir ERSEN[1*], İlker AKYÜZ[2], Bahadır Çağrı BAYRAM[3], Tutku ÜÇÜNCÜ[3]

[1]*Artvin Çoruh University, Artvin Vocational School, Department of Forestry and Forest Production, Artvin, Turkey;*
[2]*Karadeniz Technical University, Forest Faculty, Department of Forest Industry Engineering, Trabzon, Turkey;*
[3]*Kastamonu University, Forest Faculty, Department of Forest Industry Engineering, Kastamonu, Turkey;*

[*]E-mail: nadirersen20@hotmail.com;

ABSTRACT

In this study, modeling of log production using moving average, single exponential smoothing, double exponential smoothing and winters (multipcaltive and additive) methods and forecasting of monthly log production for 2017, 2018, 2019 and 2020 by means of the highest performing method was aimed. The data used in this study were obtained from the General Directorate of Forestry in Turkey. The data was monthly and included periods 2011-2016. Minitab 16 programme was used for determining best model. Comparisons of models are based on error criteria such as Mean Absolute Deviation (MAD), Mean Absolute Percent Error (MAPE), and Mean Square Deviation (MSD). Forecasts were made by the method, which it has the lowest error criterion values. When the results of accuracy forecasting of applied methods are examined, it was found that winters's multipcaltive-seasonal exponential smoothing method has the highest accuracy forecasting among the obtained methods.

Key words: Log production, Winters, Moving average, Exponential smoothing

THE RELATIONSHIP BETWEEN STATIC POSTURE WITH PAIN AND MUSCULOSKELETAL INJURIES IN CANADIAN CANOE SAILING NATIONAL TEAM

Shabnam Siahmansouri[1], Behnaz Ganji[*2], Mohammad Hosein Naser Meli[3]

[1]*Department of sport injuries and corrective exercises, Faculty of Physical Education and Sports Sciences, Azad University of Karaj, Alborz, Iran;*
[*2,3]*Department of sport injuries and corrective exercises, Faculty of Physical Education and Sports Sciences, Azad University of Karaj, Alborz, Iran;*

[*]Email: behnazganji@yahoo.com;

ABSTRACT

This study attempted to examine the relationship between static postural with pain and musculoskeletal injuries in Canadian canoe national team. The subjects were 15 rowers from the Canadian canoe Iran national team with an average age of 19.74, height of 172 cm, weight of 70.25 kg, and sports history of 5.33 years. Assessed and recorded in the information table, static posture indexes were measured with forward head goniometer, goniometer, kyphometer, scoliometer, flexible ruler and calipers. Data were analyzed through SPSS-22 at significance level of $P \leq 0.05$. There were significant relationships between the components of static postural, i.e. genu recurvatum and genu varum with neck pain, uneven shoulders with lower back and left hip pain, scoliosis with right and left knee pain and lower left leg pain, kyphosis with lower left leg pain, uneven pelvis with lower right leg pain, left ankle dorsiflexion with left knee pain and lower right and left leg pain. The most common injuries (thoracic spine, knee, back), the most common pain (knee, shoulder, lower leg), the most common deformities (forward head, hypokyphosis, scoliosis, hyperlordosis, reduced range of motion and ankle dorsiflexion) are crucial for preventing pain associated with deformities mentioned, productivity of appropriate and specialized correction protocols that reduce the severity of deformity and its subsequent complications. It is critical to include corrective postural exercises to reduce stress and pain in shoulder joints.

Keywords: static posture, pain, musculoskeletal injuries, national team rowers (sailing), Canadian canoe.

_____

THE EFFECTIVENESS OF MARITAL SKILLS TRAINING ON MARITAL SATISFACTION OF MARRIED EMPLOYEES IN KURDISTAN MEDICAL UNIVERSITY

Parya Khadivar

[1]*Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran;*

Email: parya.khadivar79@gmail.com;

ABSTRACT

The purpose of this study was to investigate the effectiveness of marital skills training on marital satisfaction of married workers in the medical sciences university. The research design was a pre-test-post-test design with control group. The statistical population of this study consisted of all married employees of the Kurdistan University of Medical Sciences who were living in the first six months of their life. The sample was randomized and included 30 subjects. After random sampling, the experimental and control groups were first performed on both groups of pretest, then an experimental intervention was presented in 8 sessions. After the completion of the program, a post-test was performed on the group. In this research, the tool of satisfaction was used by Olson et al. (1989). Validity of the questionnaires was confirmed by the experts and their reliability in a preliminary study for marital satisfaction (0.845) was used to analyze the findings of the analysis of variance test with a significance level of 0.05. The results of this study indicate that marital skills training increases marital satisfaction and satisfaction, in other words, the subjects who received marital skills training were compared to those who had this marital satisfaction They did not receive any training, had more marital and sexual consent, so the result could be said that marital skills are variable in explaining the satisfaction Sexual and marital affairs have a significant role .Also, all statistical analysis was performed using SPSS software version 22.

Key words: marital skills, communication and sexual skills, marital satisfaction.

THE EFFECT OF ONE PERIOD OF WATER TRAINING ON RANGE OF MOTION, BALANCE AND PAIN IN WOMEN SUFFERING NONE-SPECIFIC CHRONIC LOW-BACK PAIN

Maryam Nanvaei Miyandoab[1], Yahya Sokhangoei[2*], Alireza Rahimi[3]

[1]*Department of Pathology and Corrective Exercises, Karaj Branch, Islamic Azad University, Alborz, Iran;*
[2]*Department of Physiotherapy, Faculty of Physiotherapy, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran;*
[3]*Department of physical Education, Karaj Branch, Islamic Azad University, Alborz, Iran;*

Email: Yahya0102@yahoo.com;

ABSTRACT

Nowadays back-pain is one of most common pains that has involved many people in current communities. Among the public, the back pain is spreader in such a way that most of people express their problem herniated spinal disc. The studies on acute back pain and sub-acute law back pain patients, showed that many factors are effective in chronic back pain. Such as: Psychological disorders, job dissatisfaction, prolonged symptoms, pain radiating to the leg, previous history of back pain, and the high level of disability. In this research women are divided in to two experimental and control groups the experimental and control group for 8 weeks under hydrotherapy received their current treatments. Pain variables via oswestry questionnaire and Quebec, were investigated for right and left thigh disability in the range of flexion, lumbar spine flexion and extension, to evaluate back range of motion, goniometer and SR test to evaluate static balance stork test (the way of evaluating static balance) and dynamic balance were used. Dynamic balance Y were investigated. Using the research investigation it has been observed that, water (aqua) training were not only effective on left thigh flection. By the result of this research, water training has a significant effect on balance, range of motion and pain in women occur to non-specific low- back pain improvement.

Key words: water training (water exercise) balance, range of mention, pain, non-specific low- back pain.

AMBER BEER PRODUCTION AND COMPARISON WITH LIGHT BEER, IN PEJA BREWERY

Kastriot Pehlivani[1]*, Arsim Elshani[2], Nexhdet Shala[3]

[1]*College of International Management "Globus", Prishtina, Kosovo;*
[2,3]*University of "Haxhi Zeka", Faculty of Agribusiness, Peja, Kosovo;*

* Email: kastri71@hotmail.com; kastriot.p@birrapeja.com;

ABSTRACT

We have made this project with the purpose of brewing the best and the most qualitative beer for our consummators. For making the Amber beer we have used qualitative malt from Croatia, malt which we also use for making our very own light beer, knows as pilsner. In order to have a good result we have used special caramelized malt caramunich, with in combination with ordinary malt. The malt caramunich (Kunze, 2004) by means of a special production procedure, have a reddish shine and typical aroma which serves to intensify and stabilise the flavour. Also we have used special yeast Fermentys type 58, to make the Amber beer.

Key words: Malt, yeast, hops, beer.

_____

PIPERINE EXTRACTED FROM BLACK PEPPER ANOTHER PROPRIATE GREEN INHIBITOR AGAINST THE CORROSION OF METALS

Jolda Zotaj[1], Arlinda Çaçi[1], Fatos Ylli[2], Krenaida Taraj, Sadik Cenolli[1], Joana Kokalari[3], Alketa Lame[1], Efrosini Kokalari (Teli)[1*]

[1]*Department of Chemistry, Faculty of Natural Sciences Tirana, Albania;*
[2]*Institute of Applies Nuclear Physics, Tirana, Albania;*
[3]*Department of Biotechnology, Faculty of Natural Sciences Tirana, Tirana, Albania;*

Email: efrosini.kokalari@fshn.edu.al; joldazotaj@yahoo.com;

ABSTRACT

Piperine is the natural alkaloid occurring in black pepper that gives the spice, its characteristic biting taste. Piperine is easily extracted from black pepper and is the main ingredient among the others as: piperidine and piperettine. It is medicinally used as anti-inflammatory, anti- malarial, cure for stomach ache, weight loss, anti-leukemia etc. Recent studies have shown, that piperine is an efficient inhibitor against the corrosion of metals.This represent a great interest, because most of synthetic compounds that have good anticorrosive activity, are highly toxic to both, human beings and environmental. So the compounds extracted from plants, named green inhibitors, are cheap and safety handled to be used as corrosion inhibitors. The extract of piperine from black pepper, represent a great inhibitive action, against the corrosion of metals and alloys in acidic media. Piperine from black pepper was obtained by water extraction with water bath in $100^{o}C$ and with ethanol (95%) in a Soxhlet apparatus. The extract was stored at $4^{o}C$ and in the dark, to avoid the oxidation.The product of extraction was analyzed with infrared (IR) and ultraviolet (UV) spectroscopy, in order to define its chemical structure. Also we defined the yield, density, melting point and molecular weight of the product. The product of extraction was piperine. The corrosion inhibition efficiency was investigated using weight loss method. Different concentrations of inhibitor were used and an increase of efficiency was observed with the increase of the concentration. So, IE = 80%, for concentraction1.0g/l.

Keywords: extraction, black pepper, piperine, corrosion inhibitor, inhibition efficiency.

_____

THE INTERNATIONAL ASSOCIATION FOR RESEARCH ON SEISMIC PRECURSORS (IARESP) ACTIVITIES AND RESULTS DURING THE 2016-2017 EARTHQUAKES IN ITALY

L. Nicolì[1], G. Massimiani[1], G. Mastrantonio[2], M. Zucchetti[1,2]

[1]*iAReSP - Tellus Project - Via Miraflores 11/A – 67100 L'Aquila, Italy;*
[2]*Politecnico di Torino, Corso Duca degli Abruzzi 24, 10129 Torino, Italy;*

Email: info@iaresp.it

ABSTRACT

A wider approach to the Radon precursor method is proposed, based on results from a network of several multiple ground monitoring stations. The intensities of Radon emissions recorded by the network are not the only factors to be considered; Radon pulses, which are otherwise systematic in shape and time of occurrence, are analysed in real time. Measurements carried out during the recent earthquakes in August and October 2016, and January 2017 show an evident correlation between occurrence of major earthquakes in the zone and radon peaks.

Key words: Radon emissions, earthquakes, radon peaks

_____

FUSION ENERGY AND THE ARC PROJECT

Stefano Segantin[1,2], Dennis Whyte[2], Massimo Zucchetti[1,2*]

[1]_DENERG, Politecnico di Torino, Corso Duca degli Abruzzi 24, 10129 Torino, Italy;_
[2]_MIT, Massachusetts Institute of Technology, 77 Mass Avenue, 02139, Cambridge (MA), US;_

*Email: zucchetti@polito.it;

ABSTRACT

The recent progress in fields such as High Temperature Superconductors (HTS), Additive manufacturing, new diagnostics, and innovative materials, has led to new scenarios and to a second generation of Nuclear Fusion Reactor designs. The new Affordable Robust Compact (ARC) Fusion Reactor is described in the paper. ARC could be not only the base-load but also a load-following reactor, capable to cover peak requests and other plant shutdowns. In order to investigate this interesting ability of ARC, its more sensitive component has been analyzed: ARC vacuum vessel.

_____

ESTIMATION OF CARBON SEQUESTRATION BASED ON DIFFERENT METHODS: A CASE STUDY OF ORTAKÖY FOREST PLANNING UNIT

H. Ahmet Yolasiğmaz[1], Burak Çavdar[1]*, Abdurrahman Şahin[1], Aydın Kahriman[1]

[1]_Artvin Çoruh University, Faculty of Forestry, 08000, Artvin, Turkey;_

*Corresponding Author's E-mail: burakcavdar60@gmail.com;

ABSTRACT

Emerging technology and increasing population growth are causing more pollutants and more polluting gases to be released into the air. One of the most important pollutant on the air is carbon dioxide and therefore; carbon. Carbon, also holding the primary responsibility of global warming, is present in soil, water, green plants, especially forests and on the air in the state of oscillation. Because of global treaties, the countries that have signed the Kyoto Protocol, Combating Desertification and Climate Change, have to take a number of actions about both pollutant gases and their reduction. Turkey is calculating the carbon sinks and revealing the current situation regarding the pollutant gases. Our country will have to make promises in order to keep or reduce the gases released to the air at a certain level in the future. For this reason, carbon pools must be accurately identified and calculated. In Turkey, the amount of carbon held in the forests, was first calculated based on the biomass account by using the coefficients developed by ASAN on the basis of biomass calculations for needle-leaved and broad-leaved forests. In the last term, methods and coefficients were updated according to the FRA-2010 guidelines, which separately calculate the carbon in the degraded areas and the carbon in deadwood. This study was prepared to reveal the differences between the two methods in Ortaköy Forest Planning Unit in Artvin Regional Directorate of Forestry. The total amount of carbon stock in the research area was calculated by using the Geographical Information Systems database with the aid of the stand parameters according to the two different methods mentioned. As a result, 5840 tons of carbon were found to be less in the FRA method since using method and biomass expansion factors are different from the Asan methods. Unlike the other method, the carbon accumulation value in the degraded areas was found to be about 381 (22% of total carbon) thousand tons.

Key words: Carbon Accumulation, Biomass, Ortaköy Forest Planning Unit