Vol. 11 (2): 197-204 (2021)

EVALUATION OF DEEP ECOLOGY THOUGHT IN KONYA CLOSED BASIN

Sukru Dursun[1]

[1*]*Konya Technical University, Engineering and Natural Science Faculty, Environmental Engineering Department, Konya, Turkey;*

[*]Corresponding Author Sukru Dursun, e-mail: sdursun@ktun.edu.tr;

Received November 2020; Accepted December 2020; Published March 2021;

DOI: https://doi.org/10.31407/ijees11.201

ABSTRACT

Social ecology suggests that the idea of dominating nature does not stem from the domination of other people, not the contrary. Obviously, it is the result of the effects of the ecological depression and is mainly of a sociological nature. The historical emergence of states, classes, hierarchies, and the resulting market capitalism and economy, are the social forces that cause the present degradation of the biosphere, both ideologically and materially. Value judgments in society are constantly changing. However, the concept of value, which is one of the basic elements of ecology, reveals the deep ecology. The sociology of deep ecology has two important principles that explain the concepts of value: The good condition and development of human and non-human life on the earth does not happen by itself, and these values should be independent of whether the world outside of man is beneficial for human interests. The quality and quantity of life forms on the globe contribute to the emergence of these values and is an important value for him. Since the end of the last two centuries, the idea of sustainable development has been accepted as a guiding rule for economic development and environmental policies. The definition of acceptable sustainable development has received a number of criticisms, including the failure to recognize dynamic human-environment relationships, with its strong emphasis on meeting people's needs due to economic developments. In response to these shortcomings, the concepts of resilience and adaptive governance emerged as alternative perspectives for sustaining sustainable development. It is the most important situation that the environment cannot give the desired response to these changes and the changes that occur continue unlimitedly, as people change their environment in a way that can be associated with the world in general in the direction of their own interests. In this context, in this study, the term deep ecology is considered to be evaluated in Konya Closed Basin. The point emphasized in the study is that besides the importance of the idea of deep ecology, urgent and rapid studies on this subject are very important.

Keywords: Social Ecology, Deep Ecology, Konya Closed Basin, Ecology Thinking

Vol. 11 (2): 205-210 (2021)

CHARACTERISTICS OF VEGETATION STRUCTURE AND ITS POSSIBLE DESTRUCTIONS AT CONSTRUCTION OF BOREHOLES FOR GAS EXPLORING AND EXTRACTION (*Illustrated by Gas Yields in Irkutsk Region*)

Alexander Sizykh[1*]

[1*]*Siberian Institute of Plant Physiology and Biochemistry SB RAS, 664033, Irkutsk, 132, Lermontova str., Russia;*

[*]Corresponding Author Alexander Sizykh, e-mail: alexander.sizykh@gmail.com;

Received November 2020; Accepted December 2020; Published March 2021;

DOI: https://doi.org/10.31407/ijees11.202

ABSTRACT

Involving of new territories not used before into different industry forms including construction of boreholes for gas exploring requires detailed revealing and comprehensive analysis of physical-geographic and environmental conditions of concrete territories. It concerns especially easily destroyable components of biota (a biome) such as vegetation cover. Underestimation of the specifics of structural-dynamic organization of phytocoenoses in concrete ecotopes can result in the destruction of vegetation up to its complete decay. Using one of gas-bearing area in Irkutsk Region, we tried to make possible characteristics of vegetation spatial stratigraphy and its responses to some impacts while constructing boring holes under existing environmental conditions.

Key words: phytocoenoses, vegetation structure, vegetation belts, ecotopes, gas-bearing area, gas exploring and extraction, Irkutsk region, East Siberia

Vol. 11 (2): 211-216 (2021)

SERUM Ca, K, AND Na LEVELS IN DAIRY COWS WITH RETAINED PLACENTA AND DYSTOCIA

Hallouz Hadj Feghoul[1], Meliani Samia[2*], Benallou Bouabdellah[1]

[1]Institute of Veterinary Sciences, University of Tiaret, Algeria;
[2]Faculty of Natural Sciences and Life, University of Tiaret, Algeria;*

[*]Corresponding Author Meliani Samia, e-mail: meianisamia@hotmail.com;

Received November 2020; Accepted December 2020; Published March 2021;

DOI: https://doi.org/10.31407/ijees11.203

ABSTRACT

The aim of this study was to determine the evolution serum levels of Ca, K, and Na in dairy cows with retained placenta (RP) and dystocia. Fourty-five cows between 3-10 years old were used in the study. Jugular blood samples were collected via hiparined vacutainer tubes. The samples were centrifuged and the serum samples were stored at -20°C until analyse. Calcium (Ca), Sodium (Na), and Potassium (K) were determined in all samples using a Roch® *COBAS* Integra 400. In this study, Na serum levels were significantly higher ($p<0,05$) in 48 post-partum hours' cows with 139,91±7,1 mmol/l compared with dry period with 131,09 ±11,09mmol/l. However, mean serum calcium levels were 79,50±10,47 and 79,25±8,39 mg/l in cows with retained placenta in dry period and 48 hours' post-partum, respectively. The mean serum sodium levels in cows with retained placenta in dry period and 48 hours postpartum were134,00±10,99 and 137,88±5.64 mmol/1 respectively. Whereas, in case of cows without retained placenta, the sodium values for the same period were130,46±11,15 and 140,35±7,37 mmol/1, respectively. In this study, the serum Ca, Na and K concentrations of the cows with RP did not change significantly from other cows without. Furthermore, it was detected that these variables had no significant effect on serum Ca, K and Na concentrations when type of parturition and sex of calves were evaluated in the RP and control group.

Keywords: serum Ca, K, Na levels, dairy cows, retained placenta, dystocia, control group

Vol. 11 (2): 217-222 (2021)

INFLUENCE OF ADDITIVES ON THE QUALITY OF BREAD PRODUCED FROM CERTAIN TYPES OF FLOUR

Arsim Elshani[1], Ibrahim Hoxha[2*], Gafur Xhabiri[3], Nexhdet Shala[4], Nazmi Hasanaj[5]

[1,2,4,5]University of Haxhi Zeka, Faculty of Agribusiness, Department of Food technology, Peja 30000, Kosovo;*
[3]State University of Tetova, Faculty of Food Technology and Nutrition, Tetova, North Macedonia;
[4,5]Seed Producer "Koal Seed", Istog 31000, Kosovo;

[*]Corresponding Author Ibrahim Hoxha, e-mail: ibrahim.hoxha@unhz.eu; arsim.elshani@unhz.eu; earsim@hotmail.com;

Received January 2021; Accepted February 2021; Published March 2021;

DOI: https://doi.org/10.31407/ijees11.204

ABSTRACT

The main technological factors on bread production are the number of proteins, respectively the content and the quality of the gliadine and gluteline-gluten, for this reason in case it is necessary, the usage of tested additives leads to the improvement of the quality of final product. The effect of used additives, however, it is closely linked to the used wheat cultivars, as well as to the radius of the flour that will be used for the production of bread. The additives or the redox agents represent products with chemical attributes, which through the oxidation or reduction reactions that they incite in the dough, they change the rheological qualities of it, the oxidants improve the color of the flour, rheological qualities as well as the formation of pores of bread, whereas the reducing agents react in the SS connections in dough, respectively they incite the reduction of overall molecular weight of the protein aggregates of gluten protein.

Key words: gluten, radius of bread, taste of bread, volume of bread, xylanase.

Vol. 11 (2): 223-226 (2021)

METFORMIN REDUCES TSH IN HYPOTHYROID TYPE 2 DIABETIC PATIENTS

Yllka Themeli[1,2,*], Ilirjana Zekja[1,3]

[1]Faculty of Technical Medical Sciences, University of Medicine, Tirana, Albania;*
[2]"DIAMED" Diagnostic Center, Tirana, Albania;
[3]UHC "Mother Teresa", Tirana, Albania;

[*]Corresponding Author Yllka Themeli, e-mail: yllkathemeli@gmail.com;

Received January 2021; Accepted February 2021; Published March 2021;

DOI: https://doi.org/10.31407/ijees11.205

ABSTRACT

Background: Metformin is an antidiabetic drug, especially important for type 2 diabetes treatment. Recently it has been reported that metformin is able to interfere with thyroid hormone profile in hypothyroid patients under levothyroxine treatment. However, no data are available for untreated hypothyroid patients or for euthyroid diabetic patients. Objective: To evaluate the correlation between metformin treatment and thyroid function in type 2 diabetic patients. The long-term effects of metformin on thyroid hormones were assessed in diabetic patients with primary hypothyroidism who were either untreated or treated with levothyroxine, as well as in diabetic patients with normal thyroid function. Results: After 2 years of metformin administration, a significant thyrotropin decrease ($P < 0.001$) was observed in diabetic subjects with hypothyroidism who were either treated (n = 30, from 2.74 ± 1.35 to 1.27 ± 1.17 mIU/l) or untreated (n = 20; 3.01 ± 0.21 vs 4.91 ± 1.12 mIU/L) with levothyroxine, but not in 50 euthyroid subjects. No significant change in free T4 was observed in any group. Conclusions: Metformin administration influenced thyrotropin levels without change of FT4 in patients with type 2 diabetes mellitus and concomitant hypothyroidism. For this reason, the need for reevaluation of thyroid function in these patients 6, 12, and 24 months after starting metformin is indicated.

Key words: Hypothyroidism, Subclinical Hypothyroidism, Type 2 Diabetes Mellitus.

Vol. 11 (2): 227-244 (2021)

DIVERSITY AND PASTORAL VALUE OF HERBACEOUS VEGETATION IN SAVANNAH ECOSYSTEMS IN THE SUDANO-SAHELIAN ZONE OF CAMEROON: CASE OF THE MAYO-DANAY DIVISION (FAR-NORTH REGION)

BAKOULOU NGAMO Africa[1*], SOUARE Konsala[1], IBRAHIMA Adamou[2]

[1]University of Maroua, Faculty of Sciences, Department of Biological Sciences, PO Box: 814 Maroua, Cameroon;*
[2]University of Ngaoundéré, Faculty of Sciences, Department of Biological Sciences, PO Box: 454 Ngaoundéré, Cameroon;

[*]Corresponding Author BAKOULOU NGAMO Africa, e-mail : afbakoulou@gmail.com;

Received January 2021; Accepted February 2021; Published March 2021;

DOI: https://doi.org/10.31407/ijees11.206

ABSTRACT

Savannah ecosystems play an important economic role at the agrosylvopastoral level. However, agriculture and pastoral activities constitute the main human pressures on these ecosystems. These activities are exacerbated by bushfires which are common in this sudano-sahelian zone of Cameroon. The objective of this study was to characterize the floristic diversity of the herbaceous vegetation in the Sudano-Sahelian zone of Cameroon. The aligned quadrat points method was used for the floristic surveys. The experimental design consisted of four treatments which were the Subdivisions and three repetitions which were three villages per treatment. In the savannah ecosystem of each village, an aligned quadrat point (50 m x 50 m) has been installed and along each 25 m half-diangonal, ie 100 aligned points, all the herbaceous plants were inventoried. The analysis of variances was used to test the levels of specific diversity of plant formations in villages and subdivisions. Records include 71 herbaceous species belonging to 66 genera and 21 families in our study area. Species with strong contributions to specific recoveries for all sites were *Pennisetum pedicelatum, P. polystachion, Hyparrhenia rufa, H. hirta, Aristida adscensionis, A. hordeacea, Andropogon gayanus, Loudetia togoensis, Eragrostis cilianensis, E. tremula* and *Schoenefeldia gracilis.* The most representative families of our study area were Poaceae, Fabaceae and Asteraceae. The Shannon diversity index varied from 4.2 to 5.78 bits, and the Pielou evenness index from 0.77 to 0.85. The study revealed a progressive evolution of the herbaceous vegetation with a very high proportion of species on the average. Within the framework of a sustainable management of natural resources, our results provide additional information on the floristic composition of the herbaceous vegetation in the sudano-sahelian zone of Cameroon.

Keywords: Characterization, herbaceous vegetation, savannah ecosystems, Mayo-Danay Division, Cameroon

Vol. 11 (2): 245-250 (2021)

FLOOD HAZARD OF BONGABON, NUEVA ECIJA, PHILIPPINES: A VULNERABILITY AND RISK ASSESSMENT

Eros A. Castillo[1], Mario M. Abesamis, Jr.[1], Michael Angelo S. Rivera[1], John Rey B. Quiñones[1*], Noel B. Coloma[1]

[1]College of Arts and Sciences, Nueva Ecija University of Science and Technology, Cabanatuan City, Philippines, 3100;*

[*]Corresponding Author John Rey B. Quiñones, e-mail: johnrey201334@gmail.com;

Received January 2021; Accepted February 2021; Published March 2021;

DOI: https://doi.org/10.31407/ijees11.207

ABSTRACT

This study was conducted to assess the vulnerability and risk of selected barangays of Bongabon, Nueva Ecija in terms of exposure, sensitivity and adaptive capacity. It assessed the total number of people exposed to flood hazards, the sensitivity or threat level and the adaptive capacity of each barangay to withstand the flood hazard. This study used descriptive analytical method to analyze the degree of high-risk barangays of Bongabon, Nueva Ecija based on its present condition. The data gathering procedure was done through survey form which contains the items that describe exposure, sensitivity, and adaptive capacity. The scoring based on the LCCAP Guidelines was used to determine the exposure and vulnerability of high-risk barangays of Bongabon. Data showed that Barangay Lusok was the most exposed barangay to flood hazard due to the number of affected families in times of flooding. In threat level category, all of six barangays were categorized to moderate sensitivity. In adaptive capacity, majority of the barangays were classified as Medium Low while in relative vulnerability, majority of barangays were classified as Medium to Nearly Medium. In estimation of risk category, the six selected barangays were classified as High. Findings of this study served as an encouragement for the creation and formulation of the updated Local Climate Change Action Plan (LCCAP) for the municipality in order to improve its present adaptive capacity and to mitigate the serious effects of hazards in both human and environment.

Keywords: flood hazard, risk assessment, environment, municipality.

Vol. 11 (2): 251-258 (2021)

FERTILITY STATUS OF MANGROVE SWAMP SOIL OF AKWA IBOM STATE

Roland Gbarabe[1*]

[1*]*North West University, Faculty of Agriculture and Science, Department of Agriculture Extension And Economics, Mafikeng Campus, South Africa;*

[*]Corresponding Author Roland Gbarabe, e-mail: womotimi@yahoo.com;

Received January 2021; Accepted February 2021; Published March 2021;

DOI: https://doi.org/10.31407/ijees11.208

ABSTRACT

Soil fertility may be defined as the ability of soil to provide essential plant nutrients in availability forms and in a suitable balance whereas soil productivity is the resultant of several factors such as soil fertility, good soil management practices availability of water supply and suitable climate. Many factors affect soil fertility. These include nature of the soil, soil nutrients contents and soil reaction. Moorman and Pons (1974) also found that organic matter played an important role in soil fertility by forming complexes acidic ions. Moorman and Pons (1974) reported that hydrolysis of organic-metallic complexes contributed to acidity and organic matter influence availability of A1 by complexing the A1 thereby reducing soluble and exchangeable A1. There is no doubt that soil activities, soil temperature, soil transformation processes, soil effective cation exchange capacity, availability of moisture and soil (Naidoo, 1980, Ukpong, 1922, Botto and wellington, 1984) are affected by organic materials in the soil. The soil to study soil exchangeable base need not be over-emphasis on the agriculture viewpoint, these exchangeable cat ions are basic plant nutrients. In the soil there exist also anions which are negatively change ions. Cations in solution engage in a reversible reaction, that when cat ions are absorbed by the soil from the solution the solutions receive an equivalent amount of another cation. These exchange reactions are necessary for the absorption of nutrients by plants roots. Cation exchanged (plant nutrients) find their way to plant roots or are leached away or may be solidified to form rocks. Exchangeable bases Ca^2, Mg^{2+}, K^+ and Na^+ commonly occur in the soil in the order listed (Thomas 1977). But it is common in some situation to have the reverse, example in mangroves swamps soil where we have marine live (corals) and dissolution of clay minerals under acid condition. Mg^{2+} may be more than Ca^{2+} in humid soil. Ca^{2+} is low because there is no continuing source of it in the soil. Most $A1^{3+}$ + H^+ on exchange complex result in soil acidity.

Key words: Soil, fertility status, mangrove swamp soil, sustainable food production, Akwa Ibom State.

Vol. 11 (2): 259-262 (2021)

PERCEPTION AND ATTITUDE OF THE YOUTH OF CABANATUAN CITY, PHILIPPINES TO CLIMATE CHANGE

Maria Rosa Mirella E. Cobarrubias[1], Anabelle Joy G. Lazaro[1], Michael Angelo S. Rivera[1], Maria Cristina D. Ferrer[1], John Rey B. Quiñones[1*]

[1]College of Arts and Sciences, Nueva Ecija University of Science and Technology, Cabanatuan City, 3100, Philippines;*

[*]Corresponding Author John Rey B. Quiñones, e-mail: johnrey201334@gmail.com;

Received January 2021; Accepted February 2021; Published March 2021;

DOI: https://doi.org/10.31407/ijees11.209

ABSTRACT

This study was conducted to determine the perception and attitude of the youth of Cabanatuan City and the correlation of their profile to the causes and effects of climate change. 443 youth from 9 barangays were selected as the respondents for this study. The use of questionnaire was chosen as the method for gathering data and the data gathered was statistically treated by the use of percentage, weighted mean and pearson product moment correlation coefficient. The results found were, majority of the youth perceived and felt that incineration is a cause of climate change and intense storms and rainfalls and flooding are effects of climate change. The youth also perceived that reducing the use of non-biodegradable wastes is their role towards climate change. It is also found that there was a very high positive and perfect positive correlation on the perception and attitude of the youth and their profile on the causes and effects of climate change. It can be concluded that the youth are aware and concerned about the causes and effects of climate change and the study recommended that the youth should be provided activities to further increase their awareness, involvements, and perceptions on the causes and effects of climate change.

Keywords: climate change, causes and effects, Filipino youth, perception and attitude.

Vol. 11 (2): 263-268 (2021)

SPECIES COMPOSITION OF MOSSES AS A PROXY OF ACTUAL STATE OF FOREST AND A FORECAST OF THEIR DEVELOPMENT WITHIN EXTRAZONAL (PAGAGENESE) STEPPE (illustrated by Western Pre-Baikal)

Alexander Sizykh[1*]

[1*]*Siberian Institute of Plant Physiology and Biochemistry SB RAS, 664033, Irkutsk, 132, Lermontova str., Russia;*

[*]Corresponding Author Alexander Sizykh, e-mail: alexander.sizykh@gmail.com;

Received December 2020; Accepted January 2021; Published March 2021;

DOI: https://doi.org/10.31407/ijees11.210

ABSTRACT

Studies of the role of mosses as of proxies of actual state of the forests in the structural-dynamic organization of vegetation in extrazonal (paragenese) steppe allowed to find out the trends of the development of taiga-steppe coenoses within zonal taiga of Western Pre-Baikal.

Key words: mosses, forest, extrazonal (paragenese) steppe, forecast, Pre-Baikal

Vol. 11 (2): 269-276 (2021)

PHOTOCATALYTIC DEGRADATION OF METHYLENE BLUE: A REVIEW ON MODIFIED TITANIUM DIOXIDE

Hilal Kivrak[1,2*], Dunya Ibrahim Saleh[2]

[1]Eskisehir Osmangazi University, Faculty of Engineering and Architectural Sciences, Department of Chemical Engineering, Eskişehir, 26040 Turkey;*
[2]Van Yuzuncu Yil University, Faculty of Engineering, Department of Chemical Engineering, Van,65000 Turkey;*

[*]Corresponding Author Hilal Kivrak, e-mail: hilalkivrak@gmail.com; hilaldemir.kivrak@ogu.edu.tr;

Received January 2021; Accepted February 2021; Published March 2021;

DOI: https://doi.org/10.31407/ijees11.211

ABSTRACT

Water pollution is increasing through the whole world and various industries are discharging their untreated effluents into the nearby water resources at a great extent. Hence, wastewater treatment with an alternative technology is vital and thus, Advanced Oxidation Process with green chemical approach as photocatalysis has emerged. This review deals with photocatalytic degradation of methylene blue on modified TiO_2. Firstly detailed information about photocatalytic properties of TiO_2 is given and then various literature studies for methylene blue degradation is reported.

Keywords: waste water, TiO_2 , methylene blue, advance oxidation process, photocatalysis

Vol. 11 (2): 277-292 (2021)

COMPARISON OF THE ADSORPTIVE PROPERTIES OF SOME ALBANIAN CLAYS TOWARD DIMETHOATE AND METHOMYL

Erinda Prifti[1*], Nensi Isak[1], Kledi Xhaxhiu[1]

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

[*]Corresponding Author Erinda Prifti, e-mail: prifti.erinda@gmail.com;

Received January 2021; Accepted February 2021; Published March 2021;

DOI: https://doi.org/10.31407/ijees11.212

ABSTRACT

This study evaluates and compares the adsorptive properties of four natural clays from Albania regions: Brari, Currila, Dardha and Prrenjasi, in regards to the adsorption of two insecticides, dimethoate and methomyl, from their aqueous solutions. Special studies on the adsorption of these two insecticides have been previously published by authors, [45], [58], [59], and [60] while this research is focused on the comparison of the adsorbent properties of the four above mentioned clays based on the obtained experimental results. Dimethoate adsorption was performed at T=25ºC, at concentrations of 0.200 g/L, 0.300 g/L, 0.400 g/L, and 0.500 g/L, for each type of clay and for methomyl, concentrations of 0.200 g/L, 0.300 g/L, 0.400 g/L, and 0.600 g/L, were analyzed at the same temperature. Adsorption time was extended for dimethoate from 6 hours to 144 hours, for 6 days, while for methomyl from 6 hours to 72 hours, for 3 days. The comparison of the experimental data obtained shows that natural clays are able to adsorb (depending on the concentration of the insecticide) from approximately 0.1 mg/g or 0.1 g/kg technic dimethoate up to 0.8 g/kg, for the 48-hour adsorption time, while for methomyl from 0.3 g/kg to 1.4 g/kg. It is concluded that, since insecticides used in agriculture belong to rates of the order of 0.1 mg/kg soil, or 0.05-0.1 g/m^2, in their natural state, these clays can be successfully used for the treatment of contaminated groundwater with these insecticides. The clays of Dardha and Prrenjas show better adsorption properties toward methomyl, while those of Brari and Dardha show better adsorption properties toward dimethoate. This depends on the structure, physico-chemical properties and the associated substances of each insecticide. In general, methomyl adsorption on these clays is better and faster than that of dimethoate. The optimal contact time of clay-methomyl in aqueous solution varies from 24 to 48 h, further reduction of the adsorbed amount is observed due to the counter-desorption phenomenon. The adsorption of dimethoate is slower therefore the optimization of contact time clay-aqueous solution dimethoate extends to the interval of 120 h. The adsorption capacities of the four clays studied reveal the possibility of their practical employment in groundwater purification from residues of dimethoate and methomyl, used in agriculture.

Keywords: evaluates, compares, adsorptive properties, natural clays, regions, Albania.

Vol. 11 (2): 293-298 (2021)

SPECIES COMPOSITION OF PLANTS AS A PROXY AND A BASE FOR THE FORECAST OF FORMATION OF VEGETATION AT LONG-TERM EXPLOITATION OF OIL AND GAS CONDENSATE DEPOSIT (illustrated by the Upper Chona deposit, Irkutsk Region)

Alexander Sizykh[1*]

[1*]*Siberian Institute of Plant Physiology and Biochemistry SB RAS, 664033, Irkutsk, 132, Lermontova str., Russia;*

[*]Corresponding Author Alexander Sizykh, e-mail: alexander.sizykh@gmail.com;

Received January 2021; Accepted February 2021; Published March 2021;

DOI: https://doi.org/10.31407/ijees11.213

ABSTRACT

The studies of species composition of the phytocoenoses at one of oil and gas condensate deposits of the Irkutsk Region (the Upper Chona one) resulted in obtaining of basic material for indicatin of actual state and for assessment of probable changes of vegetation spatial-dynamic organization at long-term exploitation of the deposit.

Key words: plant species, proxy, forecast, oil-gas condensate deposit, Irkutsk region, Western Siberia

Vol. 11 (2): 299-310 (2021)

THE DEVELOPMENT OF BIOCHEMICAL RESEARCH TO IMPROVE THE PHYSIOLOGY OF CROP NUTRITION IN UKRAINE IN THE SECOND HALF OF THE 20th CENTURY

Nataliia Kovalenko[1*], Iryna Borodai[1], Nataliia Shchebetiuk[1]

[1]Institute of History of Agrarian Science, Education and Technique of NSAL NAAS, Ukraine;*

[*]Corresponding Author Nataliia Kovalenko, e-mail: BoikoNP@ukr.net;

Received February 2021; Accepted March 2021; Published April 2021;

DOI: https://doi.org/10.31407/ijees11.214

ABSTRACT

The second half of the 20th century was marked by epoch-making discoveries in the field of biochemistry and physiology of crop nutrition. Many of the achievements of the Ukrainian scientists have gone unnoticed by the foreign colleagues during the Soviet era, as most of them have been published in Russian-language periodicals, which have not always been available to them. In this context, the research of Ukrainian researchers, who clarified the essence of the influence of the organic substances, mineral fertilizers, micronutrients and physiologically active substances on the crop growth, development and productivity in different soil and climatic conditions gained importance and worldwide recognition. Their research on the physiological role of manganese in the crop nutrition, the establishment of the biological value of boron, cobalt, lithium, molybdenum, zinc and other microelements are of global priority. For the first time, Ukrainian scientists have compiled cartograms of content of the mobile forms of microelements in different soils of Ukraine. Using the method of the labeled atoms, the researchers have discovered the new patterns of metabolism of carbon, calcium, sulfur, phosphorus and other compounds, which contributed to the effective study of the mechanisms of distribution, supply and transport of nutrients in the crops. This discovery has found wide practical application in agriculture of Ukraine and foreign countries. In particular, the development and application of organo-mineral nutrition of the crops in its rotations, improvement of technologies for growing the cereals and vegetables by establishing industrial production and large-scale application of the organic and mineral fertilizers with micronutrients.

Key words: development, improvement, biochemical researches, nutrition physiology, crops, organic substances, mineral fertilizers, microelements, microfertilizers, method of the labeled atoms.

Vol. 11 (2): 311-314 (2021)

NOVEL FOODS: SUSTAINABLE FOOD PROCESS

Tahseen Fatima Miano[12*], Mahmut DOGAN[1]

[1]Erciyes University, Faculty of Food Engineering, Department of Food Engineering, Kayseri 38039, Turkey;*
[2]Sindh Agriculture University, Institute of Food Sciences and Technology, Tandojam 70060, Pakistan;*

[*]Corresponding Author Tahseen Fatima Miano, e-mail: tahseenfm@yahoo.com;

Received February 2021; Accepted March 2021; Published April 2021;

DOI: https://doi.org/10.31407/ijees11.215

ABSTRACT

Novel food consumption in this challenging world has grown its demand. The growing food industry has been working to produce sustainable foods by converging food safety and security in precedence additional concerned by producing various type of foods by examining the health effect benefits to consumers and its nutritional value and toxicological behaviour. Consumption strategies eliminating the undesirable food components use fewer food additives including food preservatives by replacing them through the use of new advanced technologies such as (HPP) high-pressure processing, (HHP)high hydrostatic pressure and (PEF) Pulsed electrical field and heat pasteurization are efficient methods of food production process based on food safety consumer health protection. The aim of this study is to enlighten the various novel foods and techniques used for the processing and production of sustainable and functional foods.

Keywords: Novel foods, functional food, advanced technologies, sustainable, food security.

Vol. 11 (2): 315-320 (2021)

VARIATION OF ESSENTIAL OIL COMPOSITION IN ALBANIAN *VITEX AGNUS CASTUS* L. FRUITS RELATING GEOGRAPHIC POSITION

Evelina Hasa[1*], Sonila Duka[1], Ervis Lika[2], Sidita Mance[3]

[1]Tirana University, Faculty of Natural Sciences, Chemistry Department, Tirana, Albania;*
[2]Noval Laboratory shpk, Koxhas, Maminas, Durres, Albania;
[3]Tirana University, Faculty of Natural Sciences, Chemistry Department, Tirana, Albania;

[*]Corresponding Author Evelina Hasa, e-mail: evelinahasa@gmail.com;

Received February 2021; Accepted March 2021; Published April 2021;

DOI: https://doi.org/10.31407/ijees11.216

ABSTRACT

This study investigates the variation of Albanian Vitex Agnus Castus L. essential oil chemical composition relating to geographic position. Vitex agnus-castus L. is widely distributed in the Mediterranean area, up to Central Asia, the Tropic, and south Europe. In Albania it is widespread in the western part of the Albanian coast, growing in marshes, damp places, lakes shores, and river banks. Sampling was done on different locations, from north to south Albania, during October 2017 the main harvesting period. At each location, fruits were collected randomly, from a large number of plants, representing the population of the sampling station. Samples were used for oil profiling with GC-FID/GC-MS/MS analysis and an overall of forty components were identified in all essential oils. Chromatograms of samples collected in different geographic locations show, that all of them were rich in 1, 8 cineol, β-caryophyllene epoxide, β-caryophyllene, spathulenol, terpineol, α-pinene, terpinene-4-ol, and none of these chemical compounds which were most abundant, were found to miss or not be detected. Wild Vitex agnus castus L. show a higher concentration of 1, 8 cineole in Gjader /V5, 26.66%, and the lowest in Pishpore /V8, 17.04 %. Chromatographic profiles obtained, have a similar pattern to those reported in studies made for the Albanian Vitex agnus castus L, and more or less similar to those of the surrounding countries ecotype.

Key words: extraction, hydro-distillation, Lamiaceae, seeds, vitex.

Vol. 11 (2): 321-326 (2021)

PROPERTIES COMPARISON OF TWO ACID-ACTIVATED BENTONITES OF KOSOVO TO BE USED AS BLEACHING AGENTS

Valdet Teneqja[1], Arjan Korpa[2*], Spiro Drushku[3], Kledi Xhaxhiu[2], Enkeleida Skënduli[2]

[1]Laboratory "Ex Fis Labs", Pristina, Kosovo;*
[2]University of Tirana, Faculty of Natural Sciences, Department of Chemistry, Albania;*
[3]University of Tirana, Faculty of Natural Sciences, Department of Industrial Chemistry, Albania;

[*]Corresponding Author Arjan Korpa, e-mail: arjan.korpa@fshn.edu.al;

Received February 2021; Accepted March 2021; Published April 2021;

DOI: https://doi.org/10.31407/ijees11.217

ABSTRACT

This paper presents a summary of the results of activation of two Kosovo bentonites mainly in the Goshica area and the Karaqeva area. The two bentonites have been modified by introducing optimal bentonite processing methods including acid activation, in order for them to be used as bleaching agents. They have been compared with each other and with the untreated natural bentonites. The mass percentage of H_2SO_4 in the bentonite-acid mixture varied from 10, 30 and 50% (in weight ratios). It was found that the activation of bentonites brings about significant changes in their structure and physico-chemical properties. The specific surface area and cationic exchange capacity correlate well with the amount of activator. Acid activated Kosovo bentonites show promising results to be used for industrial processing, bleaching agents and UMO recycling.

Keywords: Properties comparison, Acid activated, Kosovo Bentonites, Bleaching agents.

Vol. 11 (2): 327-330 (2021)

FOOD POVERTY, HUNGER AND ECONOMY

Tahseen Fatima Miano[12*]

[1*]*Erciyes University, Faculty of Food Engineering, Department of Food Engineering, Kayseri 38039, Turkey;*
[2*]*Sindh Agriculture University, Institute of Food Sciences and Technology, Tandojam 70060, Pakistan;*

[*]Corresponding Author Tahseen Fatima Miano, e-mail: tahseenfm@yahoo.com;

Received February 2021; Accepted March 2021; Published April 2021;

DOI: https://doi.org/10.31407/ijees11.218

ABSTRACT

This study is focused on the interrelation of food poverty, hunger and economic values which has progressed with the economic and social policies that have the connection with the sustainable food production, marketing import and export policies of agricultural food commodities owing there values in rural and urban areas. Most of the 63% world population is facing hunger and economic problems they can be minimized through sustainable macroeconomic growth and stability to alleviate poverty, policies to provide resources throughout the world cost-effective benefit food programs, providing basic necessities of physical and social shelters for individual life. Development of Entrepreneurship among the peoples through private and government sector with fiscal and monetary flexible work practices policies were applying new technologies creating new innovative ideas focusing on competitive business strategies ideas to cross the barriers with innovation motivation and cooperation will lead the sustainable availability of food; reduce hunger with increasing economy through the world.

Keywords: Food, Hunger, Economy, Innovation, policies.

Vol. 11 (2): 331-336 (2021)

ON THE CHARACTERISTICS OF ALKALI- AND ACID- ACTIVATED BENTONITE OF KOSOVO TO BE USED FOR OIL RECYCLING

Valdet Teneqja[1], Arjan Korpa[2*], Spiro Drushku[3], Arianit Reka[4], Enkeleida Skënduli[2]

[1]Laboratory "Ex Fis Labs", Pristina, Kosovo;
[2]Department of Chemistry, Faculty of Natural Sciences, University of Tirana, Albania;*
[3]Department of Industrial Chemistry, Faculty of Natural Sciences, University of Tirana, Albania;
[4]Department of Chemistry, Faculty of Natural Sciences and Mathematics, University of Tetovo, North Macedonia;

[*]Corresponding Author Arjan Korpa, e-mail: arjan.korpa@fshn.edu.al;

Received February 2021; Accepted March 2021; Published April 2021;

DOI: https://doi.org/10.31407/ijees11.219

ABSTRACT

Clay minerals are natural products with very high absorbent, ion-exchange and catalytic properties; chemical nature and pore structure have an important impact on these properties. In this paper, it is proposed to modify the Bentonite clay of Kosovo (Goshica region) by acid and alkali activation to be used for oil recycling. Acid and alkali activation was performed in ratios (10, 30 and 50%) in order to see the effect of acid and alkali treatment on the properties of Goshica Bentonite. The samples were characterized using X-ray powder diffraction (XRD), Fourier transform infrared (FTIR), structural and chemical analysis. Physio-chemical analysis was performed to find out the best activation treatment in order to increase the bentonite´s adsorption and ions exchange capacity. Significant changes were observed in the original pore structure. All the conclusions drawn correlate well with the amount of activator used. This study will provide valuable data on the effect of acid and alkali activated bentonite for the treatment and recyclability of UMO, which is essential for local industry.

Keywords: Bentonite characteristics, alkali and acid activation, Kosovo bentonite, used motor oil (UMO).

Vol. 11 (2): 337-342 (2021)

VEGETATION AND LANDSCAPE DIFFERENTIATION OF THE TERRITORY OF GOLD DEPOSIT AND IT'S ENVIRONMENT *(Republic of Sakha, Yakutia, Russia)*

Alexander Sizykh[1*], Ruslan Moritz[1], Mikhail Pastukhov[2], Vera Poletaeva[2]

[1]Siberian Institute of Plant Physiology and Biochemistry SB RAS, 664033, Irkutsk, Russia;*
[2]A.P. Vinogradov Institute of Geochemistry SB RAS, 664033, Irkutsk, Russia;

[*]Corresponding Author Alexander Sizykh, e-mail: alexander.sizykh@gmail.com;

Received February 2021; Accepted March 2021; Published April 2021;

DOI: https://doi.org/10.31407/ijees11.220

ABSTRACT

The analysis of scientific publications available in open press, reports and data of nature studies with herbaria sampling at the territory adjacent to the enterprise allowed to reveal main parameters of vegetation structure, species composition of phytocoenoses and landscapes facial composition involved directly into economic activities within the above mentioned territory. The structural-dynamics peculiarities of the plant communities and landscapes differentiation of the research region were been observing. For the territory the tableland-mountain peak, mountain-slope and mountain-valley types of the localities are characteristics. The landscapes here were occurred by mountain-tundra, sub-golets, mountain-open woodland, mountain-taiga of the nature-territorial complexes and maries too. Plateau-near-peak type of the site is formed with mountain-tundra natural territorial associations dominated by goltsy-stony landscapes groups in the upper parts of steep slopes; mountain-slope site type is formed by sub-goltsy and mountain-woodland natural territorial associations with dominance of moderately steep slopes with mountain pine and lichens, larch woodlands at lower parts of gentle slopes and green mosses larch forests with mountain pine in a group of landscapes; mountain-valley site type is characterized by mountain-taiga, mountain-woodland and marshy natural territorial associations with dominance of near-valley cowberry – green mosses and near-valley larch and spruce-larch woodlands as well as of mossy dwarf birches and swampy sedge meadows in a group of landscapes. The obtained materials on phytocoenoses composition and landscape differentiation may serve as a basic information while assessing where and in which way the environment changes under the conditions of direct technogenic impact in space and time. The studies, which are mainly reconnaissance, allowed us to reveal a rather complicated structural-territorial organization of phytocoenoses and landscape differentiation of the territory.

Key words: vegetation, structure of landscapes, natural complex, Republic Sakha (Yakutyia)

Vol. 11 (2): 343-348 (2021)

WATER QUALITY ASSESSMENT OF DRIGH LAKE, A WILDLIFE SANCTUARY AND RAMSAR SITE IN DISTRICT LARKANA SINDH, PAKISTAN

Sahibzado Farmanullah Rashidi, Kalsoom Shaikh*, Waheed Shabrani, Khalid Saifullah Rajput, Ghulam Sarwar Gachal, Abdul Rehman Shaikh, Hira Lakho, Hissam Uddin Bhatti, Taha Butto, Aisha Memon

University of Sindh, Department of Zoology, Jamshoro, Pakistan;

*Corresponding Author Kalsoom Shaikh, e-mail: kalsoom.shaikh@usindh.edu.pk;

Received February 2021; Accepted March 2021; Published April 2021;

DOI: https://doi.org/10.31407/ijees11.221

ABSTRACT

Our study aimed to assess the selected physico-chemical parameters to examine water quality of Drigh Lake as huge diversity of fishes, amphibians and birds are dependent on this lake. The water samples were collected from six locations of Drigh lake to investigate the seasonal variations in physic-chemical parameters and to identify the potential contamination sources responsible for water pollution at the lake. The physic-chemical parameters analyzed were pH, EC, TDS, T. Hardness, T. Alkalinity, Cl, SO_4, PO_4, NO_2 and NO_3. The mean concentration of all the parameters observed were pH (7.8), electric conductivity (2286.62 mS/cm), total dissolved solids (1552.58 mg/L), total hardness (356.78 mg/L), total alkalinity (302.59 mg/L), chloride (313.92 mg/L), sulphate (389.50 mg/L), phosphate (398.59 mg/L), nitrite (3.46 mg/L) and nitrate (5.70 mg/L). The results of all the physico-chemical parameters observed were above the guideline values of WHO and EPA which indicates the quality of water at Drigh lake is not suitable for survival of aquatic life.

Keywords: Drigh Lake, Water quality, Physico-chemical parameters, Sindh.

Vol. 11 (2): 349-354 (2021)

INDUCED MUTAGENESIS IN *PHASEOLUS VULGARIS*

Malvina Kodhelaj[1*], Arjana Ylli[2]

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

[*]Corresponding Author Malvina Kodhelaj, e-mail: malvinakarcini@yahoo.com;

Received February 2021; Accepted March 2021; Published April 2021;

DOI: https://doi.org/10.31407/ijees11.222

ABSTRACT

Beans (*Phaseolus vulgaris*) are considered as one of major leguminous plants and represent a high genetic and important variability for agricultural production. With climatic changes that have occurred in recent years, its production has been significantly reduced. One of the problems was the abortion of flowers of the beans, so the legumes do not survive due to high temperatures and droughts in this period. The use of induced mutagenesis techniques is one of the most important methods for the creation of new varieties. Through induced mutation techniques on bean seeds we tried to extend the time of flowering and to eliminate the abortion of flowers. Besides the economic benefits, induced mutagenesis techniques also play an important role in the study of genetics and plant development. For the realization of this study bean seeds were taken as plant of the family of legumes, and were treated with gamma irradiation of Cz-137, with three doses and chemical mutagen dES also in three doses. The impact of climate changing conditions and temperature stress treated plants have reacted positively being more resistant compare with control plants. Results obtained in the first generation of mutant M1 indicate changes compared to control for the both treatments. Changes have been noted in the amount of Chlorophyll pigments related to the acceleration of flowering, where the first doses of dES has given more and fast flowers compared to the control. There were changes in the maturity period for the two gamma rays doses (100 Gy and 150 Gy).

Keywords: Chemical mutagen, Gamma irradiation, *Phaseolus Vulgaris*, Mutation.

Vol. 11 (2): 355-360 (2021)

DIVERSITY, ECOLOGY AND CONSERVATION OF PIGEONS AND DOVES (FAMILY COLUMBIDAE) IN PAKISTAN

Bibi Abida Sirhandi, Kalsoom Shaikh*, Sahibzado Farmanullah Rashidi, Waheed Ahmed Shabrani, Iqra Arain, Misbah Arain, Ghulam Sarwar Gachal, Iqra Raees, Hira Lakho, Khalid Saifullah Rajput, Abdul Rehman Shaikh

University of Sindh, Department of Zoology, Jamshoro, Pakistan;

*Corresponding Author Kalsoom Shaikh, e-mail: kalsoom.shaikh@usindh.edu.pk;

Received February 2021; Accepted March 2021; Published April 2021;

DOI: https://doi.org/10.31407/ijees11.223

ABSTRACT

Pigeons and doves have highly adaptive nature; they not only thrive stably in urban habitats, contribute to a balanced ecosystem for human settling areas as well. They are valued for food, pollination, and trade though their habitat preference and distribution is different in Sindh province of Pakistan. Their current conservation status was also needed to be confirmed, therefore we aimed to record their diversity, ecological conditions as well as their conservation through surveys in different types of habitats from sun rise to sun set. The species of pigeons: *Columba livia* (rock pigeon), *Columba livia domestica* (domestic pigeon), and *Columba leuconota* (snow pigeon) were found from the study area along with doves including *Streptopelia decaocto* (Eurasian collared dove) and *Streptopelia risoria* (barbary dove). It was recorded that pigeon's most preferred habitat was urban areas followed by suburban areas, however dove population was denser in agricultural areas. Roosting and nesting sites were observed in wide variety of human habitations especially in brick or stone buildings. *C. livia,* was recorded as most abundant species of genus *Columba,* however *C. leuconota,* was observed very rare in study area roosting on cliffs. Population density of doves was recorded lower than that of the pigeons and they were often recorded in agricultural areas where their nests were sighted often on trees. Urban areas provide shelter to pigeons and doves where they maintain ecological conditions balanced by controlling pest insects. It was also determined that pigeons and doves are vulnerable due to hunting and illegal trade in the study area.

Keywords: Avifauna, Family Columbidae, Ecology, Dispersal, Protection, Pakistan.

Vol. 11 (2): 361-366 (2021)

MOSS BIOMONITORING OF AIR POLLUTION WITH Cr AND Ni IN ALBANIA

Lirim Bekteshi[1*], Shaniko Allajbeu[2], Flora Qarri[3], Pranvera Lazo[2], Trajce Stafilov[3]

[1]University of Elbasan, Department of Chemistry, Faculty of Natural Sciences, Elbasan, Albania;*
[2]University of Tirana, Department of Chemistry, Faculty of Natural Sciences, Tirana, Albania;
[3]University of Vlora, Department of Chemistry, Vlora, Albania ;
[4]Ss. Cyril and Methodius University, Skopje, Institute of Chemistry, Faculty of Science, North Macedonia;

[*]Corresponding Author Lirim Bekteshi, e-mail: lirimbekteshi@ymail.com;

Received February 2021; Accepted March 2021; Published April 2021;

DOI: https://doi.org/10.31407/ijees11.224

ABSTRACT

Moss biomonitoring and induced plasma atomic emission spectrometry (ICP-AES) was applied to study Cr and Ni atmospheric deposition in Albania. Moss samples Hypnum cupressiforme (Hedw) spp. were collected from 55 sites during the summer of 2015 in accordance with the LRTAP Convention - ICP Vegetation protocol and sampling strategy of the European Programme on Biomonitoring of Heavy Metal Atmospheric Deposition. The statistical analysis was applied to investigate the concentration level, the variation and the distribution of both elements over the entire territory of the country. The concentration level of Cr and Ni in moss samples of Albania expressed by median concentration of 55 moss samples, are compared with the respective medians of Balkan countries, and of selected European countries. The elements Cr and Ni are included in the European program of moss biomonitoring. It was found that the median values of these elements in Albania were generally higher than the respective median values observed in Europe and Balkan countries. Lower content of Cr and Ni were found in the coastline area of Albania compared with the inland area. The aim of this study is the assessment of the air quality throughout Albania and the identification of their pollution sources to produce information needed for better environmental management. The data may help the policy makers to improve the strategy for a clean environment in the country.

Keywords: moss biomonitoring; atmospheric deposition; Cromium and nickel, ICP-AES analysis, statistical analysis, Albania