

EDITORIAL COMMENT

Dear readers,

In the third issue of the journal for 2021, edited on English language, you will have the pleasure to get closer and familiar with seven scientific articles, included in the four main rubrics – *Man and Biosphere*, *Environmental Biotechnology*, *Radiation Ecology*, and *Forest Ecology and Biology*. Herewith I would like to inform you about the Seventh International Conference “Ecological Engineering and Environment Protection (EEEP’2021) with Youth Scientific Session and MELiSSA Summer University” which was a great success, despite the restrictions related to the Kovid-19 pandemic.

Antibiotics have established themselves as the most important pharmaceuticals for treatment of infectious diseases in humans and animals and marked the beginning of a new era in healthcare in the last century. Curious data on the prevalence of antimicrobial resistance among microbiome in drinking, surface and wastewater, and water-related biofilms are presented in the rubric *Man and Biosphere*. The available data on the content of antibiotics, antibiotic-resistant bacteria and resistance genes as pollutants of growing importance to aquatic ecosystems are summarized too. Related with antibiotics’ application are the pathologies of the respiratory system which appear due to environmental pollution, the spread of epidemics, etc. In a study of the gas exchange function of lungs is developed a mathematical model to prognose and regulate the state of the respiratory system of the organism under the indignation of the environment. The model will allow to accelerate the selection of the optimal breathing mode to achieve a stable balance of the internal and the external environment of the body.

In the rubric *Environmental Biotechnology* are presented and analyzed various non-precious metal catalysts which have been developed for application in microbial fuel cells (MFC) including carbon-based catalysts, carbon supported composite catalysts, Me-based catalysts and biocatalysts. Moreover, different carbon-based ORR (Oxygen reduction reaction) catalysts for MFC applications for wastewater treatment and energy recovery are reviewed and the carbon-based catalysts are recommended as the most promising candidates for practical applications. In a second article the thermochemical conversion of lignocellulosic biomass is considered as a good opportunity to obtain liquid raw materials for biofuels and biochemicals, e.g. biocarbon. Obtained from different biomass precursors, the physicochemical and porous properties of the biocarbon are suitable for development of effective and inexpensive sorbents for the removal of contaminants from water. In a comprehensive review the latest literature data in the field of two-stage anaerobic digestion of organic wastes are presented. In this process, various types of organic wastes can be used as substrate for production of biohythane, combining the advantages of H₂ and CH₄, as one of the important fuels involved in achieving the transition of technical models from a fossil fuel-based society to renewable-based society.

In a review article of the rubric *Radiation Ecology* are presented the results of the influence of the ionizing X-ray pulses of plasma focus on living organisms, by performing experiments in vivo and analyzing changes in some vital characteristics of the objects, such as survival ability, efficiency of photosynthesis of unicellular organisms at moderate doses (up to 65 mSv), efficiency of enzyme production, change in protein content and change in fungal mass in the radiation dose range 7 mSv ÷ 45 Sv, changes in mammalian blood characteristics and appearance of signs of anemia due to the significant dose load.

In the rubric *Forest Ecology and Biology* special attention is paid to the Green Pact of the European Union as a part of the United Nations' programme of sustainable development to 2030. At present, the EU

suggests a new vision of how to protect the environment, called European Green Deal. It is a continuation of previous policies partly formulated in the last decades of the 20-th century and improved by means of modern philosophy and technology. Special attention is paid to research and innovations in the field of pure technologies as 35% of Horizon Europe's budget will be allocated for solving climatic problems. Obtaining pure hydrogen, creating fuel cells, conserving energy, and capturing and holding carbon dioxide are priority scientific and applied fields.

Dear readers, in Varna (Bulgaria) from 30th September to 3rd October 2021 was carried out the 7th International Conference "Ecological Engineering and Environment Protection (EEEP'2021) with Youth Scientific Session and MELiSSA Summer University". Passed with great scientific and public interest, this event once again proved the importance, prospects and vital need of the covered scientific topics and technological achievements.

Enjoy reading!

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Sofia

Prof. Hristo Najdenski, DVM, DSc,
Corresponding Member of BAS,
Editor-in-Chief