

EDITORIAL COMMENT

Dear Readers,

I am writing to you about our new issue on English language, which includes topical publications on up-to-date scientific fields we strive to build and affirm – *Man and Biosphere*, *Environmental Biotechnology* and *Microorganisms and Environment*.

First, you can read in the rubric *Man and Biosphere* about physical characteristics of Senegal, its current situation of water resources and the main causes of water problems (water pollution, the problem of increasing population, agriculture as the main user of water in this country, etc.). Particular attention is paid on the current types of water management policies and the sustainable development of water resources in Senegal covering the issue of human interventions, various natural events in relation with resources and long-term decisions about water policy on the environment and the environment economy. Nevertheless, the water sector faces a set of challenges that persist such as the increasing demand for water due to population growth, the need for acceptable water quality (e.g. in the dry season) in many regions, insufficient and inefficient practice of the water management system and uncertainties related to climate change.

There are many scientists asking if the permanent magnetic field is useful for human health and under what condition. Over the past 3-4 decades various studies have been conducted to reveal the influence of strong permanent magnetic fields on laboratory animals. Biochemists analyze units of biochemical reactions, the speed of which may depend on the magnetic field parameters. Along the same first rubric of the current issue, an intriguing overview of publications and various and contradictory views on the effect of magnetic fields on living organisms and humans (e.g. controlled clinical trials) is well presented. The authors justify with a lot of data the possibilities of using magnetic field for human health benefit such as prophylaxis and concomitant therapy and the optimal parameters for specific individual treatment.

Experimental data presented in the rubric *Environmental Biotechnology* characterize the ability of eighteen white-rod basidiomycetes for biodegradation of crude oil as considerable widespread environment contaminant of soil, ground water, sediment, etc. However, the tested fungi significantly differ in their potential to eliminate pollutant during the bioremediation process. Usage of fungal mycelium pre-grown on a mixture of wheat straw and mandarin peels for inoculation of an artificially oil-polluted soil is an appropriate strategy. The capability of *Cerena unicolor* and *Panus ostreatus* to eliminate 65%, resp. 43,9% of initial oil concentration may be applied for the bioremediation of polluted environments.

Under the same heading are discussed some classical and new aspects in biodegradation of aromatic xenobiotics. Important processes of the biodegradation of phenol like the possible mechanism of aerobic and anaerobic degradation, enzymes involved in the biodegradation of phenol compounds, the main genera and species of microorganisms involved in this process, etc. are described. In the presented literature review are described also some new technology for biodegradation of phenol with bacterial immobilization in three different carriers, fluorescence in-situ hybridization analysis (FISH), nanobiotechnologies, etc. In the future, it is important both to understand the behavior and

ecotoxicity of phenols and to develop biological systems that catalyse the detoxification, degradation or decontamination of environmental pollutants.

The first article in the rubric *Environmental Biotechnology* is focused on biogas production from anaerobic digestion and co-digestion of cow dung and droppings. Physico-chemical characteristics of the experimental setup are determined and reported. Ongoing work concerns modeling of dynamics of anaerobic digestion of animal wastes which are produced in the area of Mamou, Guinea.

In recent years attention has been given to issues concerning biotechnological processing of biomass from renewable raw materials. A key point is the selection of microbial strains carrying out enzymatic hydrolysis and biotransformation of inulin and the accompanying fructo-polysaccharides, fructose and glucose, applicable in the food industry. In the rubric *Microorganisms and Environment* are reported selection of a yeast strain possessing inulinase intra- and extra cellular activity, and the optimal conditions of cultivation. Data concerning optimization of the most appropriate physicochemical and cultivation parameters for enhanced inulinase production by a newly isolated strain *Kluyveromyces* sp. C. are presented too. The topic for biodegradation of potential cellulose wastes generated during long-term manned space missions is presented by Bulgarian-Russian team. The possibility of structurally stable multispecies microbial consortia to decompose different cellulose substrates like filter paper, medical gauze and vegetable mix as potential cellulose wastes during space missions is a key technological approach for resolving the problem of wastes accumulated onboard of the spacecraft. Moreover, the studies have shown that paper and gauze hydrolysis with the help of cellulolytic bacterial communities can be an effective component of utilization of cosmonaut hygiene items. On the other side, biodegradation of plant wastes by community of anaerobic bacteria is promising and applicable tool for development of technology for microbial biodegradation of cellulose-rich organic wastes also under terrestrial conditions.

Dear readers, on behalf of the Organizing Committee I would kindly remind you for the upcoming Sixth International Conference with Youth Scientific Session ECOLOGICAL ENGINEERING AND ENVIRONMENT PROTECTION (EEEP'2019), which will be held on 5-7 June 2019 in Burgas, BULGARIA. Important and valuable information could be found on the conference website: <http://www.microbio.bas.bg/Conf2019/eco19.html>

31.03.2019
Sofia

Prof. Hristo Najdenski, DVM, DSc,
Editor-in-Chief