

EDITORIAL COMMENT

Dear readers,

The Editorial Board has the pleasure to present the first English language issue for 2026 of your favorite journal *Ecological Engineering and Environmental Protection*. In a wide range of rubrics – *Environmental Biotechnology*, *Space Technology and Environmental Monitoring*, *Renewable and Alternative Energy Sources and Biofuels*, *Ecological and Sustainable Agriculture*, *Radiation Ecology*, *Man and Biosphere*, *Microorganisms and Environment* are published in total eight peer reviewed articles - seven experimental scientific articles and one review, with the hope and confidence that they all will attract your attention. Readers will also be interested in the biographical data presented at the end of the issue about one of the leading and most respected researchers in the field of biological and agricultural sciences in Bulgaria in the first half of the 20th century.

In the first rubrics *Environmental Biotechnology* you will find comprehensive review on the state of the art, the technical feasibility and some perspectives of the anaerobic digestion and anaerobic co-digestion of poultry waste for biogas production including original authors' results in this field. The enormous benefits of poultry farming, such as meat, egg production and job creation, are discussed, as well as the associated environmental risks that adversely affect both humans and animals, such as unpleasant odor, water, soil and air pollution. The conversion of poultry waste into biogas and biofertilizer is considered one of the most effective waste management and recycling strategies.

The results from an avant-garde research of the surface complexity of the Protonilus Mensae region in the northern hemisphere of Mars are presented and discussed in an article from the rubrics *Space Technology and Environmental Monitoring*. By using an integrated approach based on fractal dimension (FD) and lacunarity analysis it is demonstrated that the topography of Protonilus Mensae exhibits fractal behavior and spatial patterns revealing predominantly low to moderate surface complexity. It could be suggested that the present-day morphology of Protonilus Mensae represents a degraded landscape shaped by a balance between roughness-enhancing processes and smoothing processes. This integrated quantitative approach provides new insights into the geomorphological evolution of not flat terrains on Mars.

In the rubrics *Renewable and Alternative Energy Sources and Biofuels*, are presented data on the potential of taro (*Colocasia esculenta* L.) peel, a significant agricultural waste, as a raw material for high-quality solid fuel briquettes. Findings validate the technical feasibility of transforming taro peel waste into an energy-dense solid fuel, demonstrating a valuable strategy for sustainable waste management and renewable energy generation.

Data from a field experiment conducted during the Aman season (July–December 2019) in a subtropical region of Bangladesh are presented in the rubrics *Ecological and Sustainable Agriculture*. It is address to the prevailing challenge of low national T. Aman rice yield and the common farmer practice of using over-aged seedlings. The authors determine the optimal seedling age and genotype combination of three rice varieties (BRRI dhan32, BRRI dhan62, and BRRI dhan80) across four transplanting ages (20, 25, 30, and 35 days) for maximizing both grain yield and seed quality.

The computer code MCNP6 is used to model HTR-10 core reactor as described in the rubrics *Radiation Ecology*. The authors predict the Flux and power distribution for normal core loaded by UO₂ fuel pebbles of the reference HTR-10 reactor. The MCNP model consisted of the reactor structure which included the graphite reflector, the borated carbon bricks surrounding it and the pebble-bed core. The results show an analogue between the thermal neutron flux distribution and the power distribution, where the thermal neutrons are responsible for causing the fission, and hence

power generation. The thermal neutron flux and power generation have its maximum value at the core center and decreases after moving away from the center to core boundary.

An innovative approach within environmental engineering focused on the improvement the physicochemical properties of water as a key natural resource is published in the rubrics *Man and Biosphere*. The study examines the properties of Alpha Omega Water® using Fourier-transform infrared spectroscopy, proton nuclear magnetic resonance spectroscopy, electrochemical impedance spectroscopy, and quantum chemical calculations based on Density Functional Theory (DFT). The results show measurable differences in spectroscopic characteristics, impedance response, and modeled water-cluster parameters between treated and control samples under the applied experimental conditions. In the same rubrics, a study is presented on urban transport systems that face increasing challenges such as congestion, emissions and inefficient first and last mile connectivity. The author proposes a methodological framework for assessing the integration of docked electric scooters based on the Internet of Things (IoT) with urban public transport through a composite index combining travel time, emissions and costs. A case study based on the transport network of Sofia, Bulgaria, compares a conventional public transport scenario with a scenario with an integrated metro and shared electric scooters.

The increasing prevalence of antimicrobial resistance has intensified the search for safe and effective alternatives to conventional antimicrobial agents, including natural compounds. L-malic acid, a naturally occurring in fruits and plant tissues, has attracted interest in this respect.

In the rubrics *Microorganisms and Environment* a study on the in vitro antimicrobial activity of a formulation containing L-malic acid against reference strains of *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Candida albicans* using a suspension assay is presented. The findings indicate that, under in vitro suspension-test conditions, L-malic acid exhibits significant antimicrobial activity against the tested bacterial and yeast strains and merit further investigation.

Dear readers, at the end of the issue you will have the opportunity to get acquainted with curious and little-known biographical data about the most famous Bulgarian geneticist - Doncho Kostov. Even today he remains an example of a researcher, dedicated to science and uncompromising in the defense of scientific truth.

Last but not least, on behalf of the Organizing Committee of the IX International Scientific Conference "Ecological Engineering and Environmental Protection with Youth Scientific Session" (EEEP'2027) I would like to invite all readers, colleagues and friends to attend this famous scientific event ([Http://conf2027.ecoleng.org/](http://conf2027.ecoleng.org/))!

Welcome in Varna (May 19-22, 2027) and enjoy reading the recent issue.

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