

Dear Readers

The book you have received was created as a result of the 14th international interdisciplinary conference "Current Environmental Issues-2019" organized in cooperation with the Faculty of Biology and Ecology of the Yanki Kupala State University of Grodno in the period 24-26th September 2019 at the Faculty of Biology and Chemistry of the University of Białystok.

It seems that at present social awareness of the importance of water, air, and soil conditions for the well-being of the population is very high. However, despite the educational efforts undertaken by relevant institutions, we are faced every day with various occurrences pointing out loopholes in the law, or the lack of awareness of the individual citizen regarding such prosaic matters as e.g. segregation of garbage or behavior in protected natural areas. Ecology is a field dealing with problems related to the coexistence of various species in a particular habitat. As a field of science, it is not easily classifiable because it covers a very diverse and extensive range of activities. It is as miscellaneous as the natural environment is heterogeneous. The scope of research of ecologists includes population research at the micro and macro levels, research on the effects of human economic activity, as well as ways of solving or avoiding ecological threats. So each of us, not only biologists dealing with population issues, but also microbiologists, physicists, chemists, as well as sociologists who study interactions on the human-natural environment border, falls within the scope of ecological research. Therefore, the content discussed in the monograph is very diverse.

The main goal of the prepared monograph was to present the current issues raised during the Conference related to the broadly understood protection of natural resources, the relationship between human economic activity and observed phenomena, as well as their impact on human health

The work begins with a chapter on issues related to an analysis of changes observed over a period of 30 years in the populations of alluvial and wetland birds in the area of south-eastern Poland.

The next chapter deals with problems related to the microbiological safety of surface waters. An analysis of bacterial species inhabiting the studied lakes and rivers is presented and an attempt has been made to point to the correlation between physicochemical parameters and the state of water purity as well as the number and type of bacteria species.

The third chapter presents a proposal for a quick new method for assaying cadmium in water matrices rich in humic substances. The described analytical procedure has been validated and can be used in routine testing of surface water.

The fourth chapter deals with problems related to the loss of viability of apple seeds. The authors present results of research on the variability of biotin levels in the embryonic axes of apple seeds during their storage, and carry out correlation tests on the biotin content and germination of seeds.

The next chapter deals with issues dealing with sociology and ecology. The research conducted by the authors indicates which initiatives taken by various

organizations contribute to raising public awareness of climate change and its prevention.

The next chapter is a typical experimental work devoted to the study of the kinetics and mechanism of the acidic dyes sorption process. The object of research were modified Lewatit and Amberlyst sorbents. The obtained results show that these sorbents can be successfully used for the decolorization of textile wastewater.

Chapter seven deals with the assessment of the viability and metabolic processes of algae of the species *Chlorella vulgaris* in an environment containing an excess of iron and manganese ions. The obtained results indicate the relationship between the level of magnesium in waters and the intensity of the eutrophication process taking place in an examined reservoir.

The next chapter is devoted to human health issues, in particular problems related to the treatment of malignant tumors. The theoretical and practical aspects of using highly purified free amino acids and mini-aminozoles for metabolic therapy of proliferative diseases is discussed in detail.

Chapter nine presents issues related to the pathogenicity of the fungus *Malassezia pachydermatis*, which displays a dual nature depending on its properties. These fungi may act as commensal, however in immunosuppressed patients and animals they often cause surface or systemic infections.

The tenth chapter is devoted to the use of a new ion-selective electrode for the determination of lead in liquid environmental samples. By using a membrane containing multi-walled carbon tubes and an ionic liquid as an internal electrolyte, a significant reduction in the detection limit and improved electrode selectivity compared to a conventional electrode was achieved.

The next chapter is focused on the relationships between climate and ecotypes of bacteria pertaining to the *Bacillus cereus* group. The authors prove that different environmental pressures lead to the selection of bacteria with distinct properties.

Another chapter discusses complications with coherent bacterial taxonomy and the definition of prokaryotic species. Although knowledge about bacterial biology is actually quite broad, still the environmental impact on bacteria, as well as horizontal gene transfer and diversity, remain explored only in part.

The next chapter is focused on the diversity of major histocompatibility complex class II (MHC II) DRB genes in moose. With the aid of molecular analyses, authors prove that the Biebrza population of this species is distinct, which suggests its relict character.

The last chapter discusses the characteristics and the mechanisms of action of polyene antimycotics in relation to the fungus *Candidia* sp., which is known as one of the most important causative factors of fungal infections in humans. New insights into the knowledge about the mode of action of these medicines and the problem of arising drug-resistance are of crucial importance.

We hope that the monograph we have prepared, due to the variety of topics, will interest many specialists dealing with various aspects of both ecology and environmental protection.

Editorial team