III-P-12. PREVALENCE OF POTENTIALLY PATHOGENIC MICROORGANISMS' POPULATIONS ASSOCIATED WITH BENTHIC MACROINVERTEBRATES IN DANUBE – DANUBE DELTA SYSTEMS

Alina Banciu[1*], Catalina Stoica[1*], Mihai Nita-Lazar[1], Daniela Niculescu[1], Sergiu Cristofor[2]

[1] *National Research and Development Institute for Industrial Ecology-ECOIND, 71-73 Drumul Podu Dambovitei, 060652 Bucharest, Romania,*

* *biologi@incdecoind.ro*

[2] *University of Bucharest, Faculty of Biology, 91-95 Splaiul Independentei, Bucharest, Romania*

Abstract

The relationship between population density and increasing human activities is well known for inducing new environmental effects. Bacterial contamination of water can be natural or artificial, based on various human activities. Microbial community structure is correlated with the seasonal cycles of the aquatic environment and the organic matter availability. Seasonal changes in physical, chemical and biological parameters of a water column cause variations in the microorganism's and invertebrate's population density.

The Danube, the second largest river in Europe, flows through several countries from where it receives many discharges of agricultural, industrial and urban effluents. It traverses across the south of Romania and flowing to the Black Sea and forming the Danube Delta. In spite of classified as a Biosphere Reserve, Danube Delta, entire Danube basin and Sfantu Gheorghe Branch increasing suffers the consequences of human activity.

The study aims to highlight the prevalence of potentially pathogenic microorganisms' populations associated with benthic macroinvertebrates in Danube – Danube Delta systems.

The microbiological contamination level was quantitatively assessed and the antibiotic resistance phenotypic profiles were established. Moreover, the effects of mussels, gastropods and worms on bacterial density and their link to antibiotic resistance have been examined.

Overall, the results showed a long-term fecal contamination of Danube Delta waters with consequent public health risk factors for drinking water caching and water based recreational activities. The study emphasized that mussels can filter and concentrate environmental pathogens potentially harmful for population with sanitary impact of surface water quality.

Keywords: *Danube Delta, bacteria, macroinvertebrates, antibiotic resistance*

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III-P-13. NUMERICAL SIMULATION OF THE DISTRIBUTION OF SETTLEABLE PARTICULATE MATTER EMISSIONS FROM THE STACK OF A SPECIAL WASTE INCINERATOR AS POINT SOURCE FRACTIONS OF CONTAINED NANOPARTICLES

Mihai Lungu[1], Daniel Arghiriade[2], Nicolae Strâmbeanu[2], Antoanetta Lungu[1], Laurențiu Demetrovici[2]

[1] Faculty of Physics, University of the West, Timișoara

[2]. SC Pro Air Clean Ecologic SA Timișoara

The control of particulate matter emissions released from the stationary sources existing within urban perimeters has been a priority in the past two decades. In this relatively short period of time, interdisciplinary studies have revealed the harmful influence of these emissions both on human health and biosphere factors.

This paper presents the authors' attempts to define the probable area of particulate matter emissions released from the stack of a special waste incineration plant located within an urban perimeter, through the numerical simulation of particulate matter dispersion under the influence of local environment factors.

The PM_{10} and PM_2, 5 fractions and their chemical nature have been determined experimentally.