

GLOBAL MEET ON CLIMATE CHANGES AND SUSTAINABILITY



**Stefania-Adelina Milea¹, Andreea-Miruna Codreanu¹,
Valentina-Andreea Calmuc¹, Catalina Iticescu^{1,2}, Puiu-
Lucian Georgescu^{1,2}, Alin-Constantin Dirtu³**

¹Dunarea de Jos University of Galati, REXDAN, Romania

²Faculty of Sciences and Environment, Department of Chemistry, Physics and Environment, "Dunarea de Jos" University of Galati, Galati, Romania

³Faculty of Chemistry, Department of Analytical Chemistry, "Alexandru Ioan Cuza" University of Iasi, Iasi, Romania

Monitoring the presence of pesticides in various fish species from the Danube River

Abstract: In light of climate change, the widespread use of pesticides has seriously jeopardized the health of all living beings, including humans. Aquatic organisms, particularly fish, are the unconscious victims of several harmful substances that ultimately find their way into aquatic systems from both natural and anthropogenic sources. Pesticides are a tremendous worldwide concern since they can bioaccumulate into various fish tissues, generating serious safety issues for consumers. Multiple research investigations have documented the toxic effects of certain pesticides from the organochlorine and organophosphorus classes on exposed aquatic organisms. Fish can sometimes have traces of a few old pesticides, including persistent organic chemicals such as dichlorodiphenyltrichloroethane, dieldrin, chlordane, lindane, and hexachlorobenzene. This study's objective was to identify 27 pesticides from both organochlorine and organophosphorus categories in eight fish species from the Danube River, in order to monitor the pollution degree. A quick, easy, cheap, effective, rugged, and safe (QuEChERS) extraction method of pesticides from fish samples before their analytical determination was applied. The extracted compounds of interest were analyzed using a gas chromatograph coupled with a mass detector triple-quadrupole, GC-MS/MS. Among the dichlorodiphenyltrichloroethanes (DDTs) found in the fish samples, 4,4'-DDE was the most common metabolite, followed by 4,4'-DDD and 4,4'-DDT. Hexachlorocyclohexane was also detected in more than 80% of the analyzed samples. The pontic shad is the fish species that exhibited both the highest amounts and the greatest variety of polluting chemicals. Despite the relatively low pesticide concentrations found in fish, it is still crucial to monitor the level of contaminants in the aquatic environment considering the increased potential for bioaccumulation.

Biography: Milea Ștefania-Adelina has completed her PhD in the Food Engineering field at the age of 30, at Dunarea de Jos University of Galati. She is now a research assistant at REXDAN Research Infrastructure. She studies different types of contaminants from various complex matrices such as environmental samples, water, air, biota, food, etc., using advanced chromatography techniques. She has published more than 30 papers in reputed journals on current, interesting, and multidisciplinary topics.