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DETECTION OF BETA-LACTAM RESIDUES IN ENVIRONMENTAL AND DRINKING WATER BY IMMUNOENZYMATIC ASSAY

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Abstract

In recent decades, concern over emerging organic contaminants in the environment has grown considerably because of their potentially harmful effects on organisms and ecosystems. These synthetic compounds are widely used in modern life-style and due to improvements in analytical technologies, we are now able to identify and quantify them even in small concentrations. One of the most important pharmaceutical contaminants is antibiotics, of which more than half belong to the class of beta-lactams. This research aimed to determine the beta-lactam antibiotics residues in surface water (rivers) and groundwater, which serve as public or private sources of drinking water, as well as in urban wastewater. The samples were collected from different places throughout the Western part of Romania and analyzed using commercially available ELISA kits for the detection of beta-lactams in liquid samples. The results show that beta-lactam antibiotics are ubiquitous in all categories of water and establish the ELISA method as an acceptable screening tool for antibiotic residues.

Key words: antibiotic residues, drinking water, ELISA