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## **Development of control methods for studying pollutions of pharmaceutical production in wastewater**

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A lot of pharmaceuticals are manufactured over the world each year. Pollution from pharmaceuticals is now recognized as an environmental concern in many countries. This has led to the creation of an extensive area of research, including among others their chemical identification and quantification.

In recent years, there have been many reports of the emergence of a large, differentiated group of pharmaceutical preparations in wastewater, surface waters, ground water and in the soil. Pharmaceuticals are a unique category of pollutants, because of their specific characteristics, and their behavior and fate cannot be imitated by other chemical organic pollutants.

Acute toxicity of pharmaceutical waste is not the biggest concern, but we still face these biologically active chemicals. Moreover, mixtures of pharmaceuticals could also give rise to an unexpected negative impact on fauna and flora.

Routes of introduction of pharmaceuticals into the environment include among others, transformation pathways, which are very important for understanding the fate and behavior of these compounds. Only a little information is currently available with regard to transformation products formed in the environment or wastewater-treatment plants. Besides the difficult selection of relevant transformation products for monitoring purposes, there are several challenges in analyzing transformation products in environmental samples.

Nowadays, two directives have been written (2001/83/EC for human pharmaceuticals, 2001/82/EC for animal pharmaceuticals) to demand an environmental assessment for the approval of new drugs coming on the market. In this regard, there has to be made a lot of effort concerning research toward environmental assessment of pharmaceuticals. Analytical methods for different kind of environmental matrices (wastewater, surface water, ground water, soil, fish, plants) have to be developed. Environmental effects of pharmaceuticals have to be investigated.

From the above, the aim of our work is to study the transformation of some pharmaceuticals, which are produced in Ukraine with the further development of methods for their identification and quantitative determination in waste waters of the largest pharmaceutical enterprises.