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THE REMOVING OF SELECTED PHARMACEUTICALS ON WWTP IN THE CZECH REPUBLIC

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In this article, the results of three years monitoring of selected pharmaceuticals (diclofenac, ibuprofen, carbamazepine, salicylic acid, clofibric acid) in the wastewaters of the Czech Republic are presented. The monitoring was performed on selected Wastewater Treatment Plants (WWTP) with various treatment technology and designed capacity. The concentrations and treatment efficiency of these substances were observed in various profiles of each WWTP, including influent, mechanical pretreatment, biological treatment, effluent. The main processes of removing selected pharmaceuticals during wastewater treatment are discussed. These results are used for design wastewater treatment technology with improved treatment efficiency of these substances.

Keywords: pharmaceuticals, wastewater, wastewater treatment, treatment efficiency.

Introduction

The relative importance of common types of pollutions in wastewaters such as easily biodegradable organic carbon, nitrogen or phosphorus is slightly decreasing. This situation is caused by reconstruction and intensification of many Wastewater Treatment Plants (WWTP), which could provide better and more efficient removing of these substances. Therefore the presence of specific pollutants in wastewaters is now in attention [1]. These substances can negatively influence not only water ecosystems, but in case of contaminating drinking water sources [2], even the human health. Part of these specific pollutants is substances commonly described as PPCP (pharmaceuticals and personal care products) [3]. Pharmaceuticals and their metabolites leave the human body in wastewaters and only some of frequent ones are successfully degraded by

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