

# **PHARMACEUTICALS IN GROUNDWATERS: SOURCES, OCCURRENCE AND BEHAVIOR**

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Nowadays, there is growing interest about the occurrence and behaviour of pharmaceuticals in the environment. A number of studies have shown that pharmaceuticals and their metabolites and transformation products can escape elimination in the wastewater treatment plants (WWTP) and enter the aquatic environment via sewage effluents. Moreover, some pharmaceuticals were found to be able to pass through an unsaturated underground zone and reach an aquifer. The typical example is antiepileptic carbamazepine that is frequently found in ground waters and in some cases in drinking water, which potentially may have an impact on humans. Therefore, it is of great interest to improve our knowledge about sources, distribution and migration of pharmaceuticals in the groundwaters, their sorption properties as well as about biotic/abiotic processes occurring during soil passage. Of further interest is the eco-toxicological effect of these emerging substances for assessing effects on the humans through the drinking water supply.

This paper gives an overview of the current knowledge about sources, occurrence and behaviour of pharmaceuticals in groundwater. It also summarizes the analytical methodology available for the analysis of low concentrations present in groundwater matrices and points out the future research needs.

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