

S40-2 Occurrence of pharmaceuticals in sewage treatment plants

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In recent years, physiologically active substances (e.g., pharmaceuticals) detected in water environment have become an emerging public concern. However, little information is available about the occurrence of pharmaceuticals in wastewater treatment plant. In this paper, we described the occurrence of 92 pharmaceuticals (e.g., anti-inflammatory drugs, anti-epileptic drugs, antihypertensives, antibiotics, etc.) in 16 wastewater treatment plants (WWTPs), and evaluated their environmental risk on aquatic organisms. We found 86 and 85 substances in wastewater influent and final effluent, respectively, at concentrations from several ng/L up to around 100 µg/L. In addition, we conducted an environmental risk assessment of 49 pharmaceuticals detected in high concentration in final effluent, for which predicted no-effect concentration (PNEC) values on crustacean and algae had been obtained. In this study, assessment factor of 100 was used. The ratio of measured environmental concentration (MEC) to PNEC of nine substances exceeded 0.1, and the ratio of three substances exceeded 1. These three pharmaceuticals exhibited high environmental risk on aquatic organisms, and attention should be paid. More information on the effects of pharmaceuticals on aquatic organisms and water quality monitoring are necessary for further evaluation and possible future countermeasures.