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Occurence, seasonal variation and long-term persistence of different SSRI concentrations in the lake systems of Southern Bangalore, Karnataka, India

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The increasing day to day usage of anti-depressants worldwide over the last few decades have been resulting in the gradual rise of them as compounds and their metabolites in small as well as large quantities in fresh water ecosystems. There has been very little knowledge from the history of such analyses regarding their effects on non-target organisms especially in the water. In the present study, the class of selective serotonin reuptake inhibitors was taken into consideration and two effluent impacted lakes of South Bangalore - Mayasandra and Giddenahalli Lake systems which lie surrounded by bulk drug producing industries were selected for analysis. The collected water and sediment samples were subjected to quantitative analysis using solid-phase extraction compiled with liquid chromatography-electro spray ionization tandem mass spectrometry. The samples analysed from the Giddenahalli lake, most predominantly showed the presence of Citalopram 0.0399 mg/L upto 25 cms depth and in the sediments as Desmethylcitalopram and Didesmethylcitalopram which are its metabolites. There were also two other inhibitors the Fluoxetine and Sertraline which were in quantities 0.0069 mg/L and 0.0299 mg/L respectively. Lake Mayasandra showed traces of desmethylcitalopram in 0.0002 mg/L. Gradual increase in the quantities of SSRIs could be seen in lake Giddenahalli during the summer between March and May and a slight decrease during the monsoon (June-August). Results obtained suggest that levels of SSRIs found were dependent on the seasonal variations as well as on the effluent treatment by the industries and their waste disposal methods.

Biography

Vidya Padmakumar is a Research Scholar at Department of Biosciences, Mangalore University making her expertise in Ecotoxicology under the guidance of Dr. N C Tharavathy, who is the Chairman of the Department as well as an expert in Environmental Science. She has over 20 published papers under her credit and is an excellent speaker in Toxicity studies.

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