
Microplastics as a contaminant in Indian riverine system: a review

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Abstract

The increased production and consumption of plastic items has led to the generation of microplastics in our environment. Microplastics (MPs) are plastic particles less than 5 mm in size and could originate due to primary as well as secondary sources. MPs are an emerging pollutant in the global aquatic environment, and their presence in different aquatic sources of India.

Riverine environment of India are reported to be abundant with MPs and this systematic review study provides an insightful understanding of the microplastic abundance in rivers and a detailed assessment of the sources and transport pathways of MPs in Indian riverine ecosystem, with a special focus on the sampling and analysis methodology.

Our review concludes that the riverine systems of India are abundant with MPs. The presence of MPs in the surface water, benthic and beach sediment as well as aquatic species of Indian rivers is very alarming. The different sampling and analysis methodology used in the studies makes the comparison of the results very challenging and their standardization is urgently needed.

The major MPs sources are of terrestrial origin, and spatial and temporal trends of MPs are affected by different sources. Careful assessment of these sources will give us better understanding on the MPs transference pathways in the riverine systems of India, which will further aid in adopting preventive measures.

Keywords: Microplastic pollution, riverine system, India, emerging pollutant, pathways, methodology

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