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ROLE OF MICROPLASTICS (MPS) IN ALTERING BENTHIC COMMUNITY STRUCTURE IN SEDIMENT SYSTEM

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Abstract
Demand for plastics has dramatically increased in the last 70 years throughout the world, and it is, we live in a plastic world. The accelerated rate of plastic production has also increased the deposition of plastic wastes in different environments. In the aquatic environment occurrence of microplastics (MPs) is extensively reported. The dynamic nature of micro- and nano-sized plastics, whose size, shape, and charge change over time, is a critical problem in understanding their fate and possible impacts. Furthermore, due to biological processes such as the aggregation of organic material and/or bacteria ("biofouling"), the density of plastic particles that settle in aquatic ecosystem sediments could be several orders of magnitude higher than that in aquatic environment. As a result, the risk presented by plastic pollution to benthic wildlife is quite severe. Indeed, most studies on the consequences of microplastics have thus far concentrated on pelagic fauna. As a result, this presentation concentrated on the impact of micro- and nano-sized plastics on benthic invertebrates, including the physical and chemical consequences of leaching and plastic particle interactions with pollutants. A detailed gap analysis on the impacts of plastic particles on benthic invertebrates indicated a wide range of effects produced by micro- and/or nano-sized plastics, but also substantial variances in the plastic materials examined, size fractions used, particle shape, and exposure routes investigated. This work finished with a discussion of the critical research gaps in freshwater ecosystems, as well as recommendations for future research fields.

Keywords: Microplastics, Benthic fauna, Sediment

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