



toxics



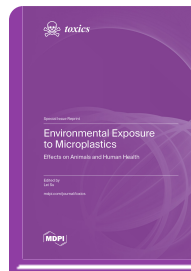
Special Issue Reprint

Environmental Exposure to Microplastics

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Edited by
Lei Su

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This Reprint compiles key research addressing the pervasive challenge of microplastic pollution. Moving beyond detection, the included studies critically examine toxicological effects and exposure pathways from a One Health perspective.

The synthesis reveals that microplastics act as carriers for co-pollutants like phthalates and pharmaceuticals, enhancing their bioavailability and toxicity in aquatic and mammalian models. Toxicological impact depends strongly on polymer type, with polystyrene and polyvinyl chloride eliciting distinct biological responses. Fieldwork from regions like the Yangtze River Estuary and Pakistan's freshwater ecosystems documents environmental distribution and confirms widespread wildlife ingestion. Innovative non-invasive methods, such as analyzing white stork pellets, are highlighted as effective biomonitoring tools. A key focus is human exposure, identifying the mechanical fragmentation of everyday plastics as a significant, overlooked pathway. Studies on wastewater treatment plants show that while microplastics are partially removed, persistent endocrine-disrupting chemicals in effluent remain an ecological concern.

By integrating toxicology, environmental monitoring, and risk assessment, this Reprint serves as a comprehensive scientific resource. It provides an essential resource for researchers, policymakers, and students seeking an evidence-based understanding of microplastic impacts on ecosystem stability, animal health, and public health.



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