

# **Prevalence of Microplastics in Municipal Solid Waste Compost of Class I & II cities of India**

**PRERNA PATEL, MADAN KUMAR, POOJA GHOSH AND  
VIVEK KUMAR**

Indian Institute of Technology Delhi

Presenting Author: [premapatel98@gmail.com](mailto:premapatel98@gmail.com)

Microplastics (MPs) are posing a serious threat to the environment. These are present in both aquatic and terrestrial environments but most of the research has been concentrated on marine and freshwater habitats, with limited attention being paid to terrestrial ecosystems. This study aims to understand the types and concentrations of MPs in Municipal Solid Waste Compost (MSWC), and their impact on agroecosystems by elucidating the overall physio-chemical characteristics of soil, microbes, and plants. This investigation focuses on the composts produced from the different levels of municipal waste sorting from one class I and class II cities in India. The approach is based on the extraction of MPs from the composts and amended soils followed by their characterization by stereomicroscopy, micro-Raman spectroscopy, and scanning electron microscopy. According to the study, the size range of the fibers and fragments identified in the sample varies from 50 $\mu$ m to 100 $\mu$ m. Polyethylene is the most abundant type of polymer found in most of the samples. The results strongly imply that, in order to prevent contamination of (agricultural) soils, standards governing the application of organic matter amendments should account for microplastics. In the future, this study will examine the impact of MPs on agroecosystems and will develop a microbial consortium to degrade MPs.