Distribution and sources of microplastics in urban ponds

Kshiij Upadhyay*[1] and Samir Bajpai

[1]National Institute of Technology, Raipur – Great Eastern Rd, Amanaka, Raipur, Chhattisgarh 492010, India, India

Abstract

The MPs research has accelerated over the last decade due to their ubiquity and ecotoxicological effects. Different ecosystems around the globe are being studied to understand the levels, distribution, characteristics, and effects of MPs. Freshwater ecosystems comprise of various diverse smaller and larger ecosystems, which are relatively unexplored. One such small inland ecosystem is freshwater urban ponds. Urban ponds are very diverse ecosystems and due to their multifunctionality and dependence on the users, they are under constant threat from anthropogenic pollution, especially MPs pollution. Aquatic MPs primarily having terrestrial origin are influenced by various factors. The levels of MPs, their sources, and transfer pathways are currently unknown in urban ponds despite the high probability of MPs contamination. The problem becomes more severe in Indian urban ponds, due to high population density, mismanagement of plastic waste, poor waste management practices, and social and cultural relationships between ponds and residents. To fill this knowledge gap, we collected MPs samples from 20 urban ponds and analyzed it to document the abundance and characteristics of MPs as well as understand the sources and transference pathways of MPs. Our results reveal that these ponds are abundant with MPs and MPs in various size classes, shapes,s, and color categories was observed. The pond MPs also seem to have terrestrial origin and due to them being isolated waterbody, ponds can be considered the ultimate sink of MPs.

Keywords: microplastics, ponds

*Speaker