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Potential threat of microplastics in a drinking water source of Chennai city, Southern India**G Kalpana and S Srinivasalu**

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Plastics and plasticine products are rampantly used by us in everyday life, and the plastic waste is omnipresent everywhere on the land causing severe plastic pollution. It is one of the human-made defining legacies on the earth. Owing to the plastic pollution concern, we focused on the Red hills Lake located in Red Hill, Chennai, India as the waters from this lake serves as the main drinking water source for the Chennai metropolitan city. Red hills Lake is located in a highly urbanized and industrial corridor of Chennai city; we speculate that activities in residential, commercial and industrial areas would significantly result in higher levels of microplastics drained into the lake waters. This first study investigates microplastics contamination across an understudied region and, more broadly, the first such study for freshwater systems. 32 Lake Floor sediments and six water samples were collected covering the expanse of the lake August 2018. Extraction of microplastic from sieved sediment samples was done as per National Oceanic and Atmospheric Administration (NOAA) protocol. The mean concentration of microplastics in Red hills Lake was 5.9 n/m³. Uppermost part of the lake which is from stations 19-32 found to have microplastic of range 1mm to be high followed by 2mm size. Different types of Microplastics were observed, including fibers (37.9%), fragments (27%), films (24%), and pellets (11.1%). Components of the selected microplastics mainly included High-Density polyethylene (HDPE), Low-Density Polyethylene (LDPE), polypropylene (PP) and polystyrene (PS). The surface elemental composition of microplastics collected from Red hills Lake was analyzed using SEM coupled with EDX. The EDX was performed to analysis adhering of heavy metals to the microplastics due to large surface area. The present study shows that plastic particles getting accumulated in water and sediment samples, especially more near the dam area from where water is supplied to the residents. Our results provide basic information on the status of microplastic pollution in Red hills Lake which supplies drinking water to Chennai city.

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