

## Identification and removal of microplastics from water sources in Kolhapur region

Mali Ojas<sup>1</sup>, Mali Gourav<sup>2</sup>, Kulkarni Ashutosh<sup>2</sup>, Chavan Heramb<sup>2</sup> and Oswal Darshana<sup>2</sup>

<sup>1</sup> Masters in Oceans and Lakes, VUB, UGhent & Uantwerp, Pleinlaan 2, 1050 Brussels, Belgium  
E-mail: ojas.anil.mali@vub.be

<sup>2</sup> Masters in Environmental studies and resource management, Institutional area Vasant Kunj, New Delhi

The plastic dependent comfortable lifestyle of humans on earth has led to many upcoming environmental pollutants. Microplastics (plastic particles, 0.1µm-5mm in size) are particularly problematic, ubiquitous in nature and could pose big treatment challenges. Microplastics have become a threat to the environment, a concern reflected by sites with unusually high concentrations and a possibility of even greater concentrations in the future. There are many uses for microplastics. For example, microbeads are used in personal care products such as exfoliates in face scrubs. Microplastics are also used to deliver drugs in some medical applications. This poster interrogates key sources of water polluted with microplastics, assess their capacity to problematize water resources in Kolhapur region, as well as offer an analysis of its effects on the environment and some of the methodologies that can be applied to control it. Process will begin with the sampling of water sources from different water and waste water treatment plant in Kolhapur.

After collection of sample, the procedure given in National Oceanic and Atmospheric Administration (NOAA) manual was followed to determine the presence of microplastics. The collected microplastics were inspected using Fourier's transform infrared (FTIR) spectroscopy and samples were examined under stereo zoom microscope (Olympus SZX 16) which helped us determine the size, colour, type, structure and concentration of identified microplastic. After identification of microplastics in sample, adsorption on activated carbon were tested for removal of microplastics and other contaminants present in the sample. Types of microplastics identified in different samples studied are simple polyolefin's (i.e. polyethylene, polypropylene) and microfibers (polyester, nylon). Study had to determine the concentration of microplastics and suggest the feasible method for removal of microplastics but due to the global pandemic further research could not proceed. resulted in not knowing the concentration of microplastics in water sources of Kolhapur region.

### Keywords

Microplastics; Microbeads; Exfoliates; Ubiquitous