

# Invisible microplastics polluting Sabarmati

Surface Runoff From Pirana, Household Washing Machine Effluents Are Major Sources

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Ahmedabad: Here is a bigger demon that is contaminating our river waters. These are microplastics and they have been detected in the Sabarmati river. Not visible to the naked eye, these toxic particles are yet to be acknowledged in our river pollution mitigation policies.

These plastic particles are so small that they pass through waste treatment plants and now threaten to pollute Gujarat's surface river water drinking sources.

In this first-ever study in the state conducted by Discipline of Earth Sciences of IIT-Gandhinagar on microplastics in the riverine systems, researchers isolated two groups of microplastic — small and large with size ranging 75 micrometres (µm) to 212µm and 212µm to 4 millimetres (mm), respectively — from the Sabarmati river sediments. A micrometre is a millionth of a meter.

The most startling fact was that microplastics begin showing up in the Sabarmati waters when they pass through Ahmedabad city the highest amount of microplastic was detected when the river passed the Pirana dump and sewerage discharge point near it. The team found 47.1 milligrams of microplastics of large category and 4 grams consisting small group of microplastic at Pirana-Gyasur banks. The findings have been presented at



the sixth international symposium on advances in civil and environmental engineering practices for sustainable development" in Sri Lanka.

Professor Manish Kumar of IIT-Gn's Earth Sciences Discipline led as principal investigator in the microplastic study which was funded by the Asia Pacific Network (APN). He says that common sources of microplastics present in a given ur-

ban setup like Ahmedabad are improper waste disposal, insufficient waste management, urban runoffs and washing machine effluent.

A US-based research has found that a single polyester fleece jacket can release more than 1,900 plastic fibres per wash. Plastic microbeads are used in toothpastes, shampoos and shower gels.

Larger plastic debris that

degrades into smaller and smaller pieces while exposed to sun also adds to microplastic generation. He further adds, "As microplastics are almost impossible to get removed by primary or secondary treatment plants owing to their small size and buoyancy they become critical from the safe water supply perspective."

The study reported that the downstream sampling point of

Sabarmati river in Ahmedabad near Pirana dumping site adds a huge quantity of microplastics through runoff especially during wet weather.

The research was led by Prof Kumar and his students Arvind Kumar Patel, Anant Agarwal, Bhagwana Ram and Rahul Upadhyay. The first detection of microplastics in Gujarat was measured in Alang-Sostya ship-breaking yard.



Sewage outlet along Sabarmati river near Shastri bridge

## IN COSMETICS

Microbead plastics, less than 1 millimetre in size, are also used in cosmetic products. From glittering beads in toothpastes, face washes, face mask to leave-on lotions

## RECENT RESEARCH

An IIT-Bombay study found microplastics in table salts made from polluted sea water. The study estimated 63.76 micrograms of microplastics per kilogram of salt. 63% comprised plastic fragments and 37% plastic fibres



## LEGAL ACTION TILL DATE

The National Green Tribunal (NGT) had recently ordered analysis of microbead products as 'not fit for use' in May 2017. No regulation has been formed by GOI post this revelation

## What Are Microplastics

Microplastics are those plastics less than 5 millimetres in size

## From Plastic Waste

Weathering of discarded plastic bags, bottles, plastics in the presence of sunlight break up into small particles and get washed into our rivers and lakes during monsoons

Microfibres — small strands of synthetic textiles from our clothing makes way into rivers via washing machine effluent

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