

# Microplastic Distribution and Seasonal Variations in Backwaters Mangrove Sediments of Sandspit Karachi

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## ABSTRACT

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Micro plastic are least visible particles that cannot be observed with naked eyes therefore, becoming another immense trouble around the world which contaminate mangrove ecosystem and ultimately human health. Presence of micro plastic in food chain impacts all the animals from primary consumers to tertiary consumers, therefore the sediments are the prime source of food for benthic fauna (Primary consumer) which is essential component of marine food chain.

**Keywords:** Sediments, Pollutions, Microplastic, Mangroves

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## INTRODUCTION

The utility of mangroves as a potential source of Seafood has been discussed in different investigations; some of them stated that mangrove organic matter provides imperative nutritional support to aquatic communities (Abrantes *et al.*, 2015). The mangrove sediments gives space and act as a sink for many pollutant in huge amount that may affect many toxic effects on aquatic biota, (Morillo *et al.*, 2008; Sany *et al.*, 2014). Microplastic pollution in near shore marine environment has become increasingly prominent and has received widespread attention. In addition to offering a setting for microplastics to enter the water, bathing beaches serve as a major location for leisure and entertainment in coastal communities. Numerous studies have revealed the widespread occurrence of microplastics (MPs) Worldwide ecological ecosystems all over the world (Yaun *et al.*, 2019). MPs may have negative effects on ecological systems and organisms, including accumulation of toxic substances (trace pollutants and harmful additives adsorbed and concentrated by MPs), false satiation brought on by MP ingestion, and negative effects on the survival, growth, metabolism, and reproduction of organisms. The various ways like; rivers, ocean outfalls, surface runoff, and atmospheric transport also convey MPs into marine ecosystems.

## OBJECTIVES

To examine and determination of microplastic's composition, distribution and seasonal variations in Mangrove sediments of Sandspit backwaters.

## MATERIALS AND METHODS

Sediments were collected from three different sites of Sandspit backwater likewise, low tide, mid tide, high tide. Brought to lab for different experiments first they were dried in oven for 48 hours at 90°C. After drying 50 gram of each sediment sample were taken in beaker and digested for MPs following the method of Lwange *et al.*, (2017) rest it for 24 hours after that they were poured on filter papers and tagged with each station after drying filter papers they were observed under stereomicroscope. Techniques, including direct counting, and separating, were used to analyse micro plastic and its various forms. To identify and understand the abundance

and distribution; micro plastic pieces in each sample were counted to determine their quantity and types in each sample.

## RESULTS

The majority of the microplastics found at the swimming beaches were lines (80 %). It includes fragments, fibers, beads, foams. This investigation discovered a total of four types of MP. Microplastic samples were detected and classed as metalized film wrapper, other microplastics black and white threads using different techniques. Metalized film wrappers are a type of plastic made from gutka and beetle nuts. Of all the microplastics, this one is the one that is noticed the most. The major sources of black and white threads are woven plastic bags and fishing nets. Results illustrated the seasonal distribution of components and the amount of microplastic, which was higher in the summer and steadily dropped throughout the winter season.

## CONCLUSION

The abundance of microplastics in bathing beach was significantly higher and illustrated the relationship between the prevalence of microplastics and human leisure activities. Increasing our understanding of the effects of additives' bioavailability and absorption over time will help us better to understand the environmental consequences of microplastic.

## ACKNOWLEDGEMENT

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