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Project Title

Surface modification of synthetic textiles to reduce Microfiber Shedding.

Objective

To reduce micro plastics pollution in marine environment happening because of shedding synthetic fiber.

Method

Commercially available synthetic textiles are sourced which are varied in the structure. The sourced fabrics will be subjected to surface treatments (NaOH, Enzyme) and finishing (Silicone, Polyurethane, natural polysaccharides like pectin, chitosan, chitin) to modify the surface properties of the fabrics. The effectiveness of these surface modifications can be tested by means of laundering the samples under varying conditions to determine the effect of detergents, wash temperature and wash time on fiber shedding. The wash liquid can be filtered using filter paper and the amount of fibers can be quantified by means of counting and weighing. The amount of fibers shed from treated and untreated samples will be compared. And also, among the various treatment tried, the effective method with higher reduction efficiency will be identified.

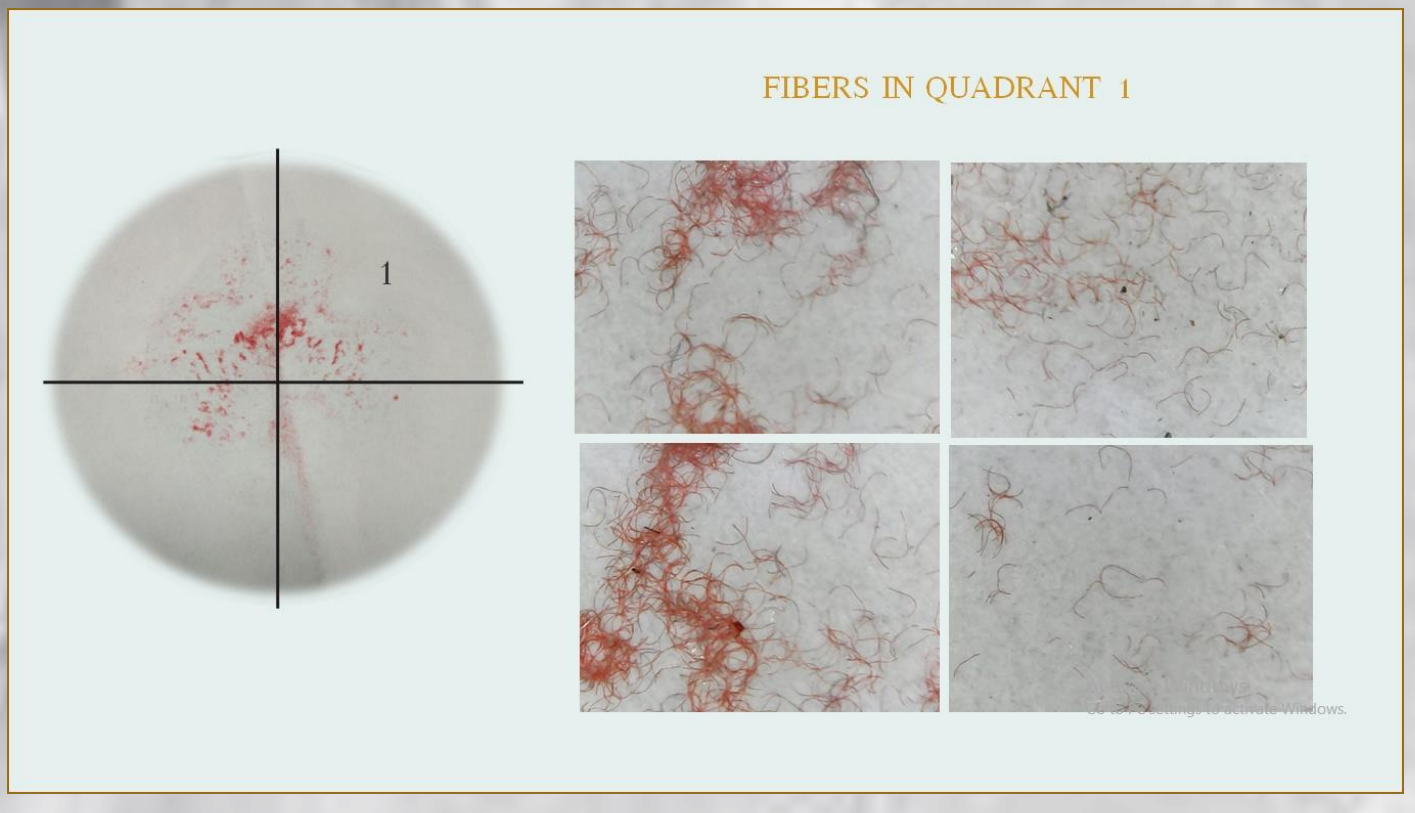
Expected Outcome

An novel application of surface modification or finishing process for the synthetic fabrics in order to reduce the fiber shedding which can ultimately reduce the threatening of micro plastics/fiber accumulation in the marine environment.

Conclusion

Since the synthetic textiles are being the major source of micro plastics, surface modification/finishing of the textile materials will be more effective as it can prevent the shedding before it is happening.

Implementation

1) This treatment can be used in textile industry.

2) Laundry Industry (Before washing clothes).