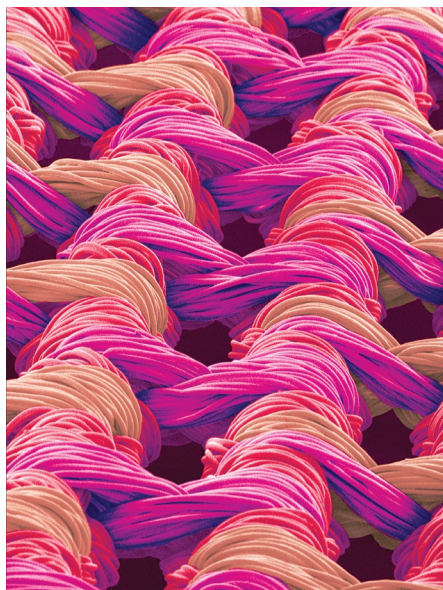


POLLUTION REDUCTION

Microfibre protective coating

Carbohyd. Polym. **198**, 175–180 (2018)



Credit: Micro Discovery / Getty

When synthetic clothes are washed, small microfibrils (<1 mm long) are released. These particles are too small to be trapped effectively by washing machine filters or wastewater treatment plants. This makes washing synthetic clothes, which contain

microfibrils such as polyamide, one of the main sources of ocean microplastic pollution. Microplastics are a problem because they adsorb organic pollutants, can be ingested by marine organisms, and may eventually be consumed by people through oysters, mussels and other marine food.

One way to reduce microplastic pollution is to place a protective coating on the surface of synthetic fabrics to reduce microfibre shedding during washing. Francesca De Falco and co-authors, from the National Research Council of Italy and the University of Naples Federico II, have developed a protective-coating process using pectin. As a waste product of food manufacturing, pectin is cheap and widely available. First, the pectin was modified using glycidyl methacrylate to reduce its solubility in water. Then, this modified pectin was grafted onto the surface of polyamide fabric. Washing trials showed that the treated fabrics released 90% fewer microfibrils compared with untreated fabrics. Moreover, this process is compatible with typical padding processes currently used during textile production.

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