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EDITORIAL

Big molecules that do not go away

Life forms on earth depend vitally upon biopolymers, big molecules consisting of smaller molecules which are linked together, as exemplified by the nucleic acids, proteins and cellulose. In general, biopolymers have both structural and functional roles in living organisms. The lifestyle of humans in modern societies is equally dependent on a different type of big molecule, man-made synthetic polymers (plastics) formed by linking together smaller molecules usually obtained from petrochemicals.

Plastics are ubiquitous, and are encountered in daily life in almost every activity one can think of. One of the properties of plastics that make them so useful is their durability, in contrast to biopolymers which degrade in the natural environment. Ironically, it is also responsible for making plastics one of the biggest environmental problems facing the world today. A major concern is microplastics, resulting from macroscopic degradation of plastic products, which now pollute the oceans and air, and have been shown to enter into biological systems. In microplastics the basic molecular structure of the polymeric materials is intact. These big molecules are not susceptible to break down by microorganisms; they just don't go away!

Tackling the worldwide problem of pollution by plastics require a multi-pronged approach including better waste management, recycling, developing biodegradable plastics, avoiding single usage products and reducing production. The recent failure of the United Nations Plastic Pollution Treaty, mainly due to a group of petrochemicals producing countries not agreeing to placing limits on the production of plastics, reflects at a deeper level the conceptual conflict between unlimited growth and sustainability. It is apparent that the idea that unlimited growth on a planet with limited resources is not sustainable, is not yet universally accepted.

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