



Microbiologists have learned to degrade plastic with “superworms” microbes in the gut

Scientists from Nanyang Technological University (NTU Singapore) in Singapore have, for the first time, created an artificial bacterial environment that mimics the guts of *Zophobas atratus* worms, which are capable of digesting plastic. The study was published in the scientific journal **magazine** Environment International (EnvInt).

Zophobas atratus worms, or black beetle larvae, are also known as “superworms” because of their nutritional value. They are often sold as pet food. Previous experiments have shown that creatures can survive by feeding on plastic. However, feeding polymer waste directly to worms proved to be ineffective; a person may only eat a few milligrams of plastic in their lifetime; therefore, implementation of the method on an industrial scale would require large numbers of worms.

In the experiment, scientists fed three groups of “superworms” different plastic foods (high-density polyethylene, polypropylene and polystyrene) for 30 days.

After feeding the larvae plastics, the team extracted microbiomes from their guts and incubated them in vials containing synthetic nutrients and various types of plastic. For six weeks, microbial communities grew in containers at room temperature.

Microbiologists discovered that over the course of a month, the number of bacteria that break down plastic in bottles increased significantly. Additionally, laboratory-grown microbes were found to be better at breaking down polymers than microorganisms in the guts of live worms. The method allowed us to identify bacterial species that specialize in processing certain types of plastic.

According to the researchers, the results support the possibility of creating biotechnological approaches to recycle plastic waste.

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