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News & Comments

A Worm that Eats Polystyrene

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Polystyrene is the most common type of plastic, that is the most difficult to recycle and takes up space in either landfills or the ocean, posing threat to aquatic life.

Australian scientists from the University of Queensland discovered an amazing worm, with a superpower, enabling them to munch on Polystyrene. Zophos Morio darkling beetles' larvae not just has an appetite for Polystyrene but has enzymes/microbiome in their gut that could digest the plastic.

These are the findings of the study led by Chris Rinke. According to the author, the larger size of the worm, than waxworms & mealworms (plastic eaters) makes them excellent for consuming more plastic.

When the team fed one group of the super worm with Polystyrene, and the other with nothing for three weeks, the former gained weight, and happily survived solely on the plastic. Despite the super worms reared on polystyrene reaching adulthood and developing into fully developed beetles, subsequent tests revealed a loss of microbial diversity in their guts and potential pathogens. Although the worms can survive solely on polystyrene, their health is affected by an unhealthy diet.

This study could be a key to finding better ways for recycling plastic, and the enzymes related to it. In the future, the team plans to conduct more research aimed at identifying the best enzymes and then creating more efficient enzymes through enzyme engineering.

By feeding worm's byproducts to other microbes, the team hopes to create high-value compounds, such as bioplastics, which hopefully will become an economically viable method of "upcycling."

KEYWORDS

Environment, University of Queensland, plastic waste, plastic; enzyme, recycling, polystyrene, plastic; degradation; microbial; bacteria; Styrofoam worm; metagenomics.