Worming Through Plastics

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Plastic is produced for its convenience, lightweight, and inexpensive but this innovation comes at a price. There is a growing problem of plastic and Styrofoam filling landfills and water ways. Research has shown that mealworms are able to digest plastic and Styrofoam without harming their health. The mealworm's gut consists of microorganisms that can digest polystyrene. Wax worms have the capability to consume plastic because beeswax their natural diet replicated properties of plastic. Which species of worms consumes polystyrene or polyethylene at a higher rate as measured in grams per week? While both meal and wax worms have breaking down properties in their stomach. Mealworms are larger in size compared to wax worms making it possible for them to consume more polystyrene in the same amount of time. Mealworms can consume polystyrene and high-density polyethylene at a faster rate in five weeks but wax worms are able to digest and consume the polypropylene at a higher rate. The mealworms' stomachs are filled with microorganisms that break down plastic using a circular process which is when the enzymes are changing polymers into monomers. Waxworms are considered pests to beehives because they destroy the honeycomb. Instead of releasing waxworms into the wild to solve our problem, and creating problems to the already struggling bee population, we should replicate the enzyme found in the waxworm gut on a large-scale usage. Extension- Can the worm waste from the digested plastics germinate seeds?I took the waste from the bottom of the worm containers and mixed it with potting soil and grew grass seeds in a terrarium. After a week, the grass seeds grew in the control and the waxworm terrariums, however, the mealworms waste prevented an seeds from germinating.

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