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A team of scientists from Nanyang Technological University, Singapore (NTU Singapore) has developed an artificial 'worm gut' to break down plastics, offering hope for a nature-inspired method to tackle the global plastic pollution problem.

By feeding worms with plastics and cultivating microbes found in their guts, researchers from NTU's School of Civil and Environmental Engineering (CEE) and Singapore Centre for Environmental Life Sciences Engineering (SCELSE) have demonstrated a new method to accelerate plastic biodegradation.

Previous studies have shown that Zophobas atratus worms - the larvae of the darkling beetle commonly sold as pet food and known as 'superworms' for their nutritional value - can survive on a diet of plastic because its gut contains bacteria capable of breaking down common types of plastic. However, their use in plastics processing has been impractical due to the slow rate of feeding and worm maintenance.

NTU scientists have now demonstrated a way to overcome these challenges by isolating the worm's gut bacteria and using them to do the job without the need for large scale worm breeding.