



Enzyme treatment for bioplastic recycling

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What we are looking for

We are looking for a suitable partner to enter into license deal/co-development partnership

What it is needed for?

This technology aims to improve the hydrolysis of bioplastics through the use of microbial enzymes that efficiently hydrolyze polyesters in bioplastic materials. In contrast to cellulosic sugar cane-based materials, starch-based bioplastics and polylactic acid (PLA) items can remain undegraded after even prolonged anaerobic digestion and/or composting treatment, with huge technological and economic issues for treatment plant owners.

In terms of waste management, enzyme-based systems could serve as a recycling approach to obtain single monomers whilst improving composting. These patented engineered *Saccharomyces cerevisiae* strains produce enzymes with high efficiency in hydrolyzing polyesters such as those in starch-based bioplastics. The use of enzymes in the degradation process has the advantage of requiring moderate process parameters and delivering valuable monomers at the end of the hydrolysis reaction.

This would allow for cradle-to-cradle recycling of bioplastics that could limit waste in polymer production and bioplastic manufacturing facilities.

Advantages

- Saves energy – Enzymatic recycling and hydrolysis is a mild temperature process;
- Monomer recovery for re-polymerisation;
- Improvement of bioplastic degradation in industrial or domestic composting and anaerobic digestion.

Applications

- Bioplastic Polymer Industry;
- Cradle-to-cradle (C2C) recycling;
- Recycling and waste management facilities;
- Organic waste treatment facilities and home composting.

TRL scale

