

The Synergistic Microbial Poly(ethylene terephthalate) Recycling

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Plastics are attacking the world. Poly(ethylene terephthalate) (PET) are very popular plastics, but serious contaminants with its non-biodegradability. Therefore, degrading waste of plastics and producing alternative biodegradable plastics become significant. Microbial PET degradation in normal temperature became considerable thanks to *Ideonella sakaiensis* PETase (IsPETase). However, enzymatic hydrolysis shows its limitation to degrade bulk PET waste at once. Therefore, integrated system among triple aspects, physicochemical bio-based PET degradation was proposed in this study. This integrated triple system connects the gap between conventional physicochemical pretreatment and microbial PET degradation through recycling PET to new biodegradable polymer in a continuous system. Now, the earth gets one solution to manage PET waste as a source for alternative eco-friendly plastics. This work was supported by the Technology Development Program to Solve Climate Changes on Systems Metabolic Engineering for Biorefineries (NRF-2012M1A2A2026556 and NRF-2012M1A2A2026557) from the Ministry of Science and ICT through the National Research Foundation of Korea