

Bacteria from Common Soil for Polystyrene Biodegradation

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Polystyrene(PS) is a versatile plastic but hard to be naturally biodegraded because its chemical structure is composed of the linear carbon backbone and alternating phenyl moieties side chains which indicate hydrophobic characteris. In this work, we used the mesophilic bacteria from the common soil as a biocatalyst for PS biodegradation. Of particular importance, biodegradation can be circulated in the environment. The bacteria include the new strains such as *Pseudomonas lini* JNU01 and *Acinetobacter johnsonii* JNU01. The growth of the bacteria indicates that the PS is the sole carbon source in a non-carbonaceous nutrient medium. The Fourier-transform infrared spectroscopy (FT-IR) spectra show that the biologically degraded PS includes the hydroxyl group and additional new chemical functionalities. In addition, field emission scanning electron microscopy (FE-SEM) exhibits the defective external surface morphology, and the contact angle measurement result indicates the relatively hydrophilic surface characteristics for the biodegraded PS film. This result indicates that the PS can be successfully degraded using the bacteria from the comment soil.