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Data Article

Dataset on the impact of UV, nitric acid and surfactant treatments on low-density polyethylene biodegradation

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ABSTRACT

Present investigation evaluates the LDPE (low-density polyethylene) biodegradation efficiency of polymer degrading bacteria along with UV, nitric acid and surfactant treatments. In current scenario LDPE contamination reported as dominant pollutant in terrestrial and aquatic ecosystem due to its expulsion from commercial and domestic practices. Biodegradation serve as an innovative and effective approach to waste management as compared to land filling and burning processes. The outcomes of UV, nitric acid and surfactant treatments on polymer degradation in addition to bacterial treatment were determined by SEM, FT-IR and electrical conductivity analysis.

Specifications Table

Subject area	Microbiology, Ecology, Biodegradation
More specific subject area	Outcomes of UV, nitric acid and surfactant treatments on biodegradability of low-density polyethylene samples
Type of data	Tables, Figures, Text file

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How data was acquired	Exploitation of UV, nitric acid and surfactant treatments along with bacterial strains; SEM, FT-IR and electrical conductivity of polymer film was analyzed;
Data format	Analyzed
Experimental factors	Role of physical and chemical treatments on LDPE biodegradation
Experimental features	The relationship between the physical, chemical and biological treatments
Data accessibility	The data are available with this article

Value of the data

- This data could be used as systematic tool for increasing polymer degradation.
- This data will also help in developing the specific and appropriate approach for polymer degradation in a sustainable manner.
- This data represented the impact of physical and chemical treatments on the LDPE biodegradation.

1. Data

The dataset of this article described the consequence of physical and chemical treatments, which include UV, nitric acid and surfactant treatments in LDPE degradation in addition to polymer degrading bacterial strains (*Bacillus subtilis* V8, *Paracoccus aminophilus* B1 4-, *Pseudomonas putida* C 2 5, *Pseudomonas aeruginosa* V1 and *Acinetobacter calcoaceticus* V4). The Figs. 1–3 show the scanning electron microscopy (SEM) micrographs of UV, nitric acid and surfactant treated biodegraded polymer

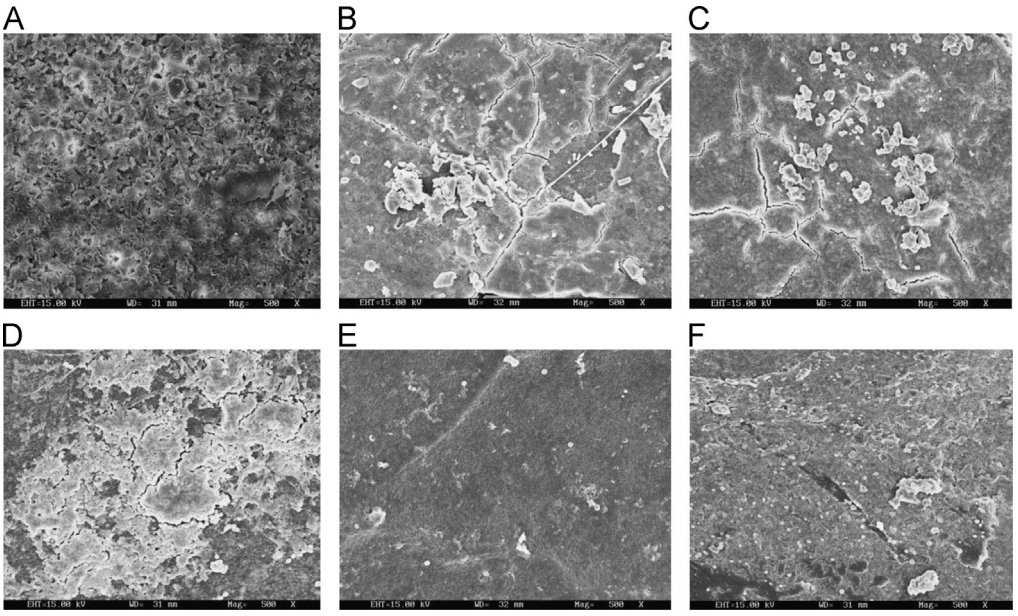

Fig. 1. Scanning electron microscopy (SEM) micrographs of UV treated biodegraded polymer samples A- control (without UV treatment), B- *Bacillus subtilis* V8+UV treated polymer, C- *Paracoccus aminophilus* B1 4-+UV treated polymer, D- *Pseudomonas putida* C 2 5+UV treated polymer, E- *Pseudomonas aeruginosa* V1+UV treated polymer, F- *Acinetobacter calcoaceticus* V4+UV treated polymer after incubation.