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Biodegradation of low and high-density polyethylene by selected microorganism

Plastic is one of the harmful and inert waste which cause serious threat to the environment especially polythene products. So, in this suggested study an effort was prepared to develop effective consortium that polythene. Consortium was a mixture of three fungus (*Aspergillus fumigatus, Fusarium sp.* and *Aspergillus oryzae*) and two bacteria (*Pseudomonas stutzeri* and *Bacillus sp.*) which can mutually grow with each other. The biodegradation was calculated on the basis of dry weight of polythene and CO_2 evolution test by shake flak method. The dry weight of polythene is major parameter to check the biodegradation. Consortium found maximum degradation in the 60 days (18.22%) in treated High-density polyethylene HDPE and (9.15%) non treated HDPE. On the other hand % degradation for treated Low-density polyethylene LDPE (52.26%) and non-treated LDPE (21.51%) were higher in 90 days which is more than other single strain degradation. The mixture of bacteria and fungi evolve high CO_2 in non-treated HDPE (92.69%) in 25 days and treated HDPE (53.33%) in 20 days. Consortium also evolved maximum CO_2 in the case of non-treated LDPE (92.48%) in 15 days and for 89.42% for treated LDPE in 20 days.

Biography

Padma Singh PhD, FBS, FAPSI is professor and Head, Department of Microbiology, Girl's Campus, Gurukul Kangri University, Haridwar, (Uttarakhand) India. She has obtained her degrees of M.Sc(gold medal) and PhD from Jiwaji University, Gwalior (MP). She has published more than 80 research papers and review articles in various national and international journals.

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