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**THERMOPHILIC MICROBIAL COMMUNITIES DEGRADING
SELECTED SYNTHETIC POLYMERS**

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Abstract

Biodegradations of three synthetic biodegradable polymers Ecoflex, PBAT, both aliphatic aromatic copolyesters and polylactic acid (PLA), an aliphatic polyester were compared under aerobic conditions at 58°C simulating composting of the mentioned materials. Rates of processes were estimated by carbon dioxide release monitoring. To get an insight into microbial community dynamics DNAs from incubations were sampled amplified with a set of primers with different specificity and analysed with temperature gradient gel electrophoresis (TGGE). A significant evolution of patterns in relation with polymer biodegradation was found with actinomycete specific primers. Our results suggest that all studied polymers were degraded by bacteria belonging to Actinobacteria under composting conditions but interesting differences were observed between both aliphatic aromatic copolyesters and polylactic acid (PLA) indicating that different microorganisms are important with different polymers. The study was complemented with attempts to isolate pure degrading strains.
