

Saidu, M. B., Gonçalves, D., Castro, P. M. L., & Moreira, I. S. (2022). *Mangroves as a source of polyethylene terephthalate (PET) degrading bacteria*. Abstract from European Federation of Biotechnology 2022 virtual conference – EFB 2022.

Polyethylene terephthalate (PET) is one of the most widely used plastics, and its accumulation in the environment has become an issue of great concern. PET wastes constitute a critical source of pollution to the environment, with important impacts on ecosystems and human health. One possibility to address this problem is to identify microorganisms that may be able to naturally degrade the compound for downstream applications. This study investigated the biodegradation of PET films in soil in the presence or absence of mangrove plants, and with or without bioaugmentation with bacterial isolates of the genus *Bacillus* and *Enterococcus*. The experiment was performed in an open garden for ten months. At the end of this period, biodegradation assays of PET monomers and intermediate were further performed using bacterial consortia isolated from the soil of the different treatments. Terephthalic acid (TPA) and bis-2-hydroxyethyl terephthalate (BHET) were added to liquid medium as the sole carbon sources and incubated for 10 days at 30°C. Growth of the consortia was monitored by spectrophotometry, and degradation was followed by HPLC analysis of aliquot samples. The preliminary results from gravimetry analysis showed no significant changes in PET films, regardless of the treatment. On the other hand, total degradation of TPA and BHET was observed for all assays independently of treatment. The results suggest that although direct biodegradation of PET may be challenging to accomplish, bacteria capable of degrading the intermediates and monomers of PET are readily available in the natural environment.