

Effect of compost medium on oxidative-linear low density polyethylene/soya powder blends

Abstract

One alternative to enhance the degradability of polyethylene is the addition of prooxidant substances to their matrix. The polymer materials are called oxo-biodegradable. Current investigation aimed to assess the abiotic degradation of linear low density polyethylene (LLDPE), formulated with soya powder and cobalt stearate as prooxidant additives. The blends of LLDPE/soya powder are to improve the degradability of the materials. The samples with different blends ratio and fixed amount of cobalt stearate was buried into natural soil. It was found that the tensile strength and elongation at break of the eroded materials from the prooxidant activated samples were significantly lower than the control sample without cobalt stearate. These samples underwent biodegradation and gave weight loss values up to 9% over 6 months of soil burial. The blends with higher soya powder content shows higher degradation in compost medium.

Keywords

Cobalt stearate; Compost medium; Soya powder; Tensile properties; Weight loss