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Department of Physics

Patent Information

Name of Staff	**Dr. Amit L. Gadre** Assistant Professor, Department of Physics
Title of the invention	**"Synthesis and study of bio-erodable material using low density polyethylene and polyethylene glycol "**
Date of filing of Application	**19/01/2015**
Patent Grant Date	**19/11/2020**
Patent No.	**351764**
Technical field of Invention	The present invention relates to a biodegradable plastics material and to a method for its manufacture. In particular, the invention relates to synthesis and study of bio-erodable plastic material comprising a low density polyethylene (LDPE) and polyethylene glycol (PEG).
Description	The rapid growth of plastics production causes very serious problem of accumulation of plastics in environment. Present invention discloses the methods for the synthesis of degradable plastics. In the present invention the thin composite films of LDPE + PEG are synthesized by solution evaporation method. The sample is degraded by soil burial technique in compostable soil for 90, 120, 180 days and the samples are characterized by XRD, Fourier Transform IR, and UV – Visual spectroscopy before and after degradation. Thus, with the addition of PEG in low density polyethylene (LDPE) makes an environmental friendly and degradable material in natural soil environment. The bio-erodable polymer are the polymer that degrades or slowly disintegrates without action of micro-organisms. It is a kind of controlled degradation that happens due to addition of pro-degradent (PEG). During degradation such polymers oxidizes or enbrittle in environment and erode under by weathering. Present piece of investigation of effect of PEG on degradation of LDPE revealed that PEG helps in a-biotic degradation.