

# **Biodegradability of Poly (lactic acid), Preparation and Characterization of PLA/Gum Arabic Blends**

## **Abstract:**

In this study, the biodegradation of PLA films using microorganisms from Lake Bogoria (Kenya) were investigated. The biodegradation tests done using certain strains of thermophilic bacteria showed faster biodegradation rates and demonstrated temperature dependency. The biodegradation of the PLA films was studied using Gel Permeation Chromatography (GPC) and light microscopy. The biodegradation of PLA was demonstrated by decrease in molecular weight. The preparation and characterization of PLA/Gum Arabic blends were also investigated using DSC, TGA, TMA and NMR. In summary, the results obtained in this research show that PLA films undergo fast biodegradation using thermophiles isolated from Lake Bogoria. The PLA/GA blends studies show it is possible to prepare films of varying hydrophobic–hydrophilic properties for various applications