

Title: **Synthesis of high molecular weight PLA for biomedical applications**

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Poly (lactic acid), (PLA), is a biodegradable polyester from renewable resources, it is currently used daily and used for various applications, for example in the packaging industry, for the textile sector and for biomedical use. In recent years biomedicine is having very important advances and PLA to be a bioabsorbed polymer take much interest in this area.

In this project, it has been studied and synthesized the PLA, more specifically the PLLA from L-lactide, since lactide, the monomer used in this synthesis, is a chiral compound that according to its origin can be isomer D, isomer L or a mixture. The synthesis of the PLA can be done in two ways, by direct polycondensation of lactic acid (LA) or Ring Opening Polymerization (ROP) through the cyclic dimmer (lactide). In this work was carried out the synthesis by second method, ROP, since it is the way to achieve a high molecular weight PLLA suitable for biomedical applications. To find out if the objective was reached, this PLLA was characterized by Infrared Spectroscopy (IR), Differential Scanning Calorimetry (DSC) and Scanning Electron Microscopy (SEM).

Keywords: PLA, poly (lactic acid), biodegradable polyester, bioabsorbed, ROP, L-lactide.