

## Synthesis and Characterization of Poly(L-Lactide-ran- $\epsilon$ -Caprolactam) Copolymer by Ring Opening Polymerization

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Poly(L-lactide)(PLLA) is attractive material due to biocompatible and biodegradable and pharmaceutical applications, but mechanical properties of PLLA are not sufficient. Random copolymers of Poly(L-Lactide-ran- $\epsilon$ -Caprolactam) were synthesized by ring opening polymerization to improve mechanical properties. A process was carried out via bulk polymerization in the presence of initiator 6-aminocaproic acid and catalyst tin octoate. 6-aminocaproic acid was used as initiator of  $\epsilon$ -caprolactam and tin octoate was used as catalyst of L-lactide. The characters of copolymers were evaluated by means of DSC, TGA, gel permeation chromatography (GPC) and <sup>1</sup>H-NMR spectra. The varied molecular weight copolymers could be obtained within specific range of ratio between L-lactide and  $\epsilon$ -caprolactam. The higher moiety of L-lactide led to the higher average molecular weight of copolymers.