Separation of Optically Pure Lactide by Solubility Differences in the Water

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The optical purification of lactide was investigated in order to elucidate the effect of the optical purity of lactide on the poly(lactic acid)(PLA) synthesis. For improving optical purity of lactide, the effect of temperature, time, solvent, stirring velocity(RPM) on the lactide purification were examined. It was observed that the meso-lactide fraction decreased with increasing temperature. The optical purity of lactide was maximized when the separation was conducted at 25 ℃. The meso-lactide fraction decreased greatly at the 10 minutes and gradually at the range of 20 – 60 minutes. When the water was used as a medium for separation, the optical putity of lactide was maximized. The highest optical purity of lactide was obtained at 200 RPM. The stirring velocity is able to control the size of crystal exert a decisive influence on minimizing the remaining meso-lactide.