Electrospun Nanofibrous Membranes of Poly(L-lactic acid-co-succinic acid-co-1,4-butane diol)

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Poly(L-lactic acid) (PLLA) has been of received much interest in recent years because it is synthesized from renewable resources.The major route to convert lactic acid to high-molecular-weight polymers is ring-opening polymerization of lactide. We found alternative synthesis routes based on direct condensation copolymerization of L-lactic acid (LA) together with succinic acid (SA) and 1,4-butane diol (BD) to produce high-molecular-weight biodegradable copolymers of poly(L-lactic acid-co-succinic acid-co-1,4-butane diol) (PLASB). PLASB offers new possibilities to prepare degradable copolymers for biomedical applications by extending the range of polymer properties achievable. Recently, the electrospinning method has attracted a great deal of attention because it can produce non-woven membranes of nanofibers. The electrospinning technology was found suitable to process bioabsorbable polymers for biomedical applications. In the present study, we studied the effects of the processing parameters in electrospinning on the microstructure of biodegradable PLASB membranes. We also measured the mechanical properties of the PLASB membrane.