SYNTHESIS AND CHARACTERIZATION OF POLYMERIC BIOMATERIALS FOR USE AS A SUBSTITUTE BLOOD VESSEL

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Cardiovascular diseases are a leading cause of death worldwide, this caused by vascular damage they generate. Currently options are sought to replace the damaged vessels having a diameter smaller than 6 mm since there is no fully effective treatment in such cases. The use of natural and synthetic polymers in binding electrospinning technique offers the possibility of obtaining functional grafts in these diameters. In this work three synthetic polymers are used and one naturally seeking to imitate the mechanical properties of these vessels, specifically arteries with a diameter between 1 mm and 6 mm. Begins with obtaining different polymers either by extraction or by a synthetic route then by electrospinning technique, the different layers of several prototypes were obtained. The polymers were characterized by FT-IR while the prototypes were analyzed using scanning electron microscopy to analyze its microstructure. Moreover, their mechanical properties were studied to verify that they can withstand the blood pressure.

Keywords: Blood vessels, Electrospinning, Polymers

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