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# Preparation and Characterisation of Electrospun Extracted β-Chitosan/Poly(Vinyl Alcohol) Blend Nanofibers for Tissue Engineering

**Authors :** E. Roshan Ara Begum, K. Bhavani, K. Subachitra, C. Kirthika, R. Shenbagarathai

**Abstract :** In recent years, there has been a growing concern for the production of chitosan blend nanofibrous scaffold for its favorable physicochemical properties which mimic the native extracellular matrix (ECM) both morphologically and chemically. Therefore, this study focused on production of β-chitosan(β-Cts) and Poly(vinyl alcohol)(PVA) blend nanofibrous scaffold by electrospinning. β-Cts was extracted from the squid pen waste of locally available squid variety Loligo duvauceli (Indian Squid). To the best of our knowledge, there are no reports on nanofibers preparation from the extracted β-Cts. Both the β-Cts and PVA polymers were mixed in two different proportions (30:70 and 40:60 respectively. The electrospun nanofibrous scaffolds were characterized by SEM, swelling property, in vitro enzymatic degradation, and hemo, biocompatibility properties. β-Cts/PVA nanofibers scaffolds had an average fiber diameter of 120 to 550nm.Among the two different β-Cts/PVA blends nanofibers the β-Cts/PVA (40:60) blend fibers demonstrated favourable tissue engineering properties. The β-Cts/PVA (40:60) blend nanofibers exhibited a swelling ratio of 36 ± 2.5% with mass loss percentage of 20 ± 2.71% after 4 weeks of degradation. It has exhibited good hemocompatible properties. HEK-293(Human Embryonic Kidney) cells lines were able to adhere and proliferate well in the β-Cts/PVA blends nanofibers. All these results indicated that electrospun β-Cts/PVA blends nanofibers are a suitable scaffold to be used for tissue engineering purposes.

**Keywords :** β-chitosan, electrospinning, nanofibers, poly(vinyl alcohol) (PVA)
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