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# Control of microstructure architecture of polycaprolactone electrospun scaffolds

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Tissue engineering is an area in which new tissues or organs are replicated in a promising way to replace damaged tissues or organs caused by accidents and medical conditions. For cells to grow, a proper environment provided by scaffolds can imitate the composition of that original human extra cellular matrix (ECM). This study focuses on the preparation of Polycaprolactone (PCL) nanofibers using electrospinning approach. The effect of process parameters such as PCL concentration, flow rate and voltage supply on the architecture of microstructure was also studied. The diameter and porosity of the nanofibers were analyzed from images taken by Scanning Electron Microscopy. Beads were found in the electrospun scaffolds due to high humidity. The beads formation was reduced by adding PBS salt solution and increasing the distance of the collector plate from the needle tip. Further, electrospun nanofibers with larger diameters were by having higher PCL concentration, higher flow rate and lower voltage. This study suggests the importance of the control of humidity and process parameters during process electrospinning in the control of the microstructure of the electrospun scaffolds.

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## Topics

[Polymers](#), [Porous media](#), [Scanning electron microscopy](#), [Nanofiber](#), [Electrospinning](#), [Tissue engineering](#)

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