

# **Knitted electrospun silk nano-fibers fabrication & mechanical properties evaluation analyze for regenerative medicine applications**

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## **Abstract**

In this study we have succeeded to fabricate knitted Silk nano-fibers by using Gap-Method electro-spinning. With this method we can produce scaffolds with flexible and unique mechanical properties that can be used in Reconstructive medical applications. Knitted nano-fibers are generated in two angles ( $60^0$  &  $90^0$ ). Silk fibroin (SF) is used for production of nano-fibers. SF is obtained from  $\text{CaCl}_2$ /Ethanol/cocoon solution and then followed by dialysis procedure to remove salt. Cocoons were made by the Gilan silkworms. The Mechanical properties of the produced scaffolds are measured in four directions (axis and perpendicular to the axis of two angles). Scaffold porosity calculated by measuring the density ratio and Fibroin amount of scaffold have been evaluated by FTIR method. The viscosity of SF solutions is analyzed by rotational Brookfield viscometer to evaluate its morphological properties.

## **Biography**

Masumeh Dodel is a PhD candidate in Amirkabir University of Tehran, Iran. She has more than 7 years experience of producing polymeric nano-fibers at Stem cell Technology Research Center. She is now one of the faculty members of this research center. She is co-author of more than 10 papers in reputed journals.

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