



042-MAT

## Nanofibers Synthesized by Homemade Electrospinning System to be Utilized in Engineering Application

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*Electrospinning is a process based on the use of static electric power, produced from high voltage power supply, for the production of Micro/Nano-fibers. Such microfiber cannot be produced by conventional methods used for the production of textiles. The electrospun fibers have a large area per unit mass and flat surfaces. Nanofibers spun from a natural or a synthesis polymer, or a combination of them. This study presents a lab-made and low-cost prototype of electrospinning setup that is able to produce polymer nanofibers and investigate the different aspects of the process to gain control of nanofiber morphology, structure, and surface functionality. The poly (ethylene-co-vinyl alcohol) was chosen to spun and the effect of some important parameters such as variation of distance and applied voltage was examined to optimize the setup. The concentration was kept constant at 10% w/v. The morphological properties of the synthesized nanofibers were investigated by Scanning Electron Microscope (SEM) and Transmission Electron Microscope (TEM). The results confirm the ability of our lab-made electrospinning prototype to produce non-woven nanofibers in dimension of few microns. The work will be conducted to utilize the functional produced nanofibers in water filtration processes.*