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Development of *Mimosa pudica* incorporated silk-PCL nanofibrous mat for wound healing application

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In this study, ethanol extracted *Mimosa pudica* was incorporated into the silk-PCL (Polycaprolactone) nanofibrous mat was prepared through electrospinning method. Silk-PCL polymer ratio was optimized and it was found that silk-PCL (70:30) concentration forms nanofiber. To improve antibacterial activity against infected wound, 2.5% of the *Mimosa pudica* herbal extract was added to silk-PCL solution and electrospun into nanofibrous. These developed nanofibers were analyzed through SEM, TGA. Further, the nanofibrous mat was evaluated for antimicrobial activity and concluded that the leaf extract of *Mimosa pudica* have strong antimicrobial activity against *E. coli* than *S. aureus*. Drug release study of electrospun mat shows the sustained drug release of *Mimosa pudica* due to the presence PCL polymer on the nanofiber mat. Thus, this study confirmed that the *Mimosa pudica* incorporated silk-PCL electrospun mat can hold great promises to be used in wound healing applications.

Keywords: *Mimosa pudica,* silk, polycaprolactone, electrospinning, wound healing.