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# FUNCTIONAL SODIUM ALGINATE NANO FIBROUS SCAFFOLD FOR WOUND HEALING

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Wound healing is a complex process involving several biological factors. Although the body's defense mechanism aids in healing, several biomaterials are designed to promote faster healing and preventing infection. Tissue engineering has advanced incredibly to address major problems in wound healing. Electrospinning of polymers to form a scaffold is one such sophisticated technology. So, sodium alginate a natural polymer was found to be a good material owing to its inherent properties to function as a potent wound dressing material. Sodium alginate (SA) was electro spun along with the water soluble polymer polyvinyl alcohol (PVA). Polyhydroxybutyrate (PHB), another biodegradable polymer was co-electrospun along with SA-PVA; PHB formed the core of the fiber while SA-PVA formed the outer shell of the fiber. To further improve the functionality of the scaffold, silver nanoparticles were loaded in the alginate solution which proved to act as an effective antibacterial agent. On controlling infection and progress the healing of wound, arginine- a vital amino acid was loaded and spun in the polymer solution with PHB. This formed a complete biomaterial for cutaneous wound healing. Thus this scaffold was found to be a multi-functional dressing material with control over the infection and advancing the process of wound healing.

## BIOGRAPHY

Shiny P John has completed his Doctorate in Nano biotechnology, where he fabricated silver and platinum nanoparticles for anticancer application. After his Doctorate, he joined CSIR-CLRI for his Post-Doctoral work funded by the Department of Science and Technology, India. His research in the Biological Materials Laboratory in CLRI was on the development of a dual functioning scaffold for skin regeneration. He has published 12 research articles in peer-reviewed international journals and also presented papers in several conferences. His areas of interest include nano biotechnology and nanotechnology for tissue engineering.

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