

Development of artificial skin using chia seed and chitosan complex for laceration wound healing in diabetic patients

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The laceration wounds treatment using some exceptional materials as wound dressing has always been focused by the researchers since human history. A large number (>90%) of cut and burn wound cases happened in developing countries due to lack of legislation and safety standards for fire events at work places. The treatment regimens involve highly complex and sequential events of wound healing. Chitosan, a well-known biomedical material having higher biodegradability, being used as drug carrier and being used in wound dressings since long. Herein, we assumed to extract the chitosan from the house cockroaches and from exoskeletons of shrimps. We have been collected the house cockroaches and processed to convert the chitinous material into chitosan using standard methods. Chitosan has been reported wonderful material for tissue regeneration, hence attained much attention recently. Chia seed gel has been well described as a rich source of peptides, carbohydrates and omega fatty acids, hence all these are a good source for enhancing the wound healing process for diabetes as well as burnt wounds. This led us to idealize for preparing artificial membranes by complexing the chitosan with chia seed gel to a membrane having potential for healing the wounds. The biomaterial shall be characterized using Scanning Electron Microscope (SEM), Fourier Transform Spectroscopy (FTIR) and X-Ray Diffraction Analysis (XRD). An antimicrobial study has already been done for this prepared material which showed exceptional activities against various pathogenic bacterial and fungal strains. The prepared membranes shall be of low cost, and comparable to any international standard products.

Keywords: Chia seed gel, Chitosan, Laceration wounds, SEM, FTIR, XRD analysis.

Biography

Mariam Bashir is affiliated to the Cholistan University of Veterinary and Animal Sciences (CUVAS), Bahawalpur, 63100, Pakistan.

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