

Effect of the powder and hydroalcoholic extract of the fruit sheath of *Prosopis farcta* on the fibroblasts and angiogenic process in wound healing of rat.

Z. Shahi^{1,*}, M. Nakhaee², M. Hasani³, A. Balandeh³

¹Department of Biology, Science and Research Branch, Islamic Azad University, Kerman, Iran

²Department of Biology, Islamic Azad University, Mashhad, Iran

³Department of Biology, Payame Noor University, Kerman, Iran

Background and Aims: Wound healing involves a complex series of interactions between different cell types, and... . Fibroblasts play a key role during the angiogenic process for a correct development of blood vessels. The formation of bundles of collagen fibrils by fibroblasts is fundamental for the development and migration of new blood vessels in lesioned area during wound repair. Plants and their extracts have immense potential for the management of wounds. The phyto-medicines for wound healing are not only cheap and. These natural agents induce healing and regeneration of the lost tissue by multiple mechanisms. So that, inspecting the effect of the powder and hydroalcoholic extract of *Prosopis farcta* on healing is the aim of this study.

Methods: 18 male rats by the weight of about 300 gr, were selected and 4 circular holes with the diameter of 4mm were made at two sides of vertebral column. Rats were classified randomly into three groups of control, test for powder and test for hydroalcoholic extract. The powder group and the hydroalcoholic extract group were treated twice a day and the control one was treated with normal saline until the wounds were closed.

Results and Conclusions: According to statistical analysis, microscopic results showed that fibroblast proliferation and angiogenesis rate treated with powder and hydroalcoholic extract, had faster process of healing compare to control group. It can be probably concluded that, the powder of the fruit sheath of *prosopis farcta* and hydroalcoholic extract have an effective role on wound healing. However, there is a need for scientific validation, standardization and safety evaluation of plants of the traditional medicine before these could be recommended for healing of the wounds.

Keywords: Fibroblasts; Angiogenesis; Wound healing; Hydroalcoholic extract; *Prosopis farcta*