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WOUND HEALING ACTIVITY OF METHANOLIC EXTRACT OF *ARNEBIA BENTHAMII*

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ABSTRACT: *Arnebia benthamii* (synonym - *Microtomia benthamii*) commonly known as Ratanjot or Laljari found in western Himalayan region and used as wound healer roots by local vaid and tribes. The roots of *Arnebia benthamii* contain a red dye that is used in various health disorders like fungal infection, inflammation, fever and coloring/flavoring agent in Indian curries. To estimate wound healing potential of root extract of *Arnebia benthamii*, percentage wound contraction, wound area, epithelization time, tensile strength and wound index were measured in 13 days of wound healing study. The results showed highly significant wound healing in excision as well as incision wound healing models ($P < 0.01$). The *Arnebia benthamii* extract-treated wounds showed about 41% higher wound contraction rate and 44% increased tensile strength in comparison with negative control animals. The epithelization time decreased by 43% and wound index value decreased by 89% in comparison to negative control animals which indicated that methanolic root extract of *Arnebia benthamii* is very helpful in faster and high-quality wound healing ($P < 0.05$).

INTRODUCTION: Plants are traditionally used to treat wounds, cuts, and burns by folklore traditions and tribes all over the world. Modern research showed that plants could heal wounds by various mechanisms like angiogenesis, fibroblast proliferation, up-regulation of iNOS, activation of NF- κ B, favour of proinflammatory cytokines, alpha 1 type 1 collagen synthesis or/and antioxidant activity ¹. The skin injury by cut, tear or puncture in epidermis or dermis of skin, results in wound ². Wound healing is a complex process to restore the damaged structures of skin in the injured area.

The healing cascade for wounds can be divided into inflammatory, proliferative and remodeling phases in which many different and connected healing mechanisms are involved ³. The rapid hemostasis, inflammation, migration, and differentiation of mesenchymal cells at wounded sites occur then angiogenesis process starts with re-epithelization and collagen synthesis and finally remodeling of healed skin completed ⁴.

The impaired healing of wounds is mainly due to defects in the healing process, which may be caused by many factors like oxygenation, infection, stress, sex hormones, and age while some diseases also impair wound healing like diabetes, obesity, ischemia, uremia, and fibrosis. Some medications may also retard the healing of wounds includes glucocorticoid steroids, non-steroidal anti-inflammatory drugs, and chemotherapy. The alcoholism, smoking and malnutrition also affect

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