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Evaluation of antioxidant potential and wound healing activity of topical formulation of *Heliotropium bacciferum* extract in rat

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Background and Objective: Wound healing is a dynamic process that happens in tissue under skin. Research shows a relationship between stress oxidative and wound healing, in inflammation, NOX activation is intensified which makes it to able produce excessive of ROS and finally inflammation and cellular damage is exacerbated. Also these factors make wound healing process delay. In this study, the medicinal plant which is called *Heliotropium bacciferum* has antioxidant effect and because of that and some anti-bacterial, anti-inflammatory effects, these factors make healing process happen sooner.

Materials and Methods: The herbal plant was collected and identified by pharmacognosist. The plant was then dried and hydroalcoholic extract was prepared by maceration method. The typical phytochemical tests were done and the related topical formulation was prepared by incorporating 2.5%, 5% and 10% of the prepared extract to suitable vehicle base. The wound healing activity was investigated on rats divided into five groups of CICALFATE (standard), Sham, and three test groups of 2.5%, 5%, and 10% w/w of extract (formulation) after induction of wound. After 14 days, tissue was removed and analyzed for histopathological change and evaluation of oxidative stress. Data were analyzed using SPSS software.

Results: In histopathological examination, the group under treatment of formulation 5% concentration is better than standard. The prepared formulation represented suitable stability and released profile.

Conclusion: The obtained results of the present work showed suitable wound healing effect of topical formulation of *Heliotropium bacciferum* which need further investigations to found about related molecular mechanisms.

Keywords: *Heliotropium bacciferum*, stress oxidative, wound healing

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Effect of Cow vitreous humour on wound healing in diabetic wistar rat

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Background and Objective: The characteristic of diabetic ulcers is delayed wound healing due to persistent inflammation and excessive production of reactive oxygen species. In this study, the vitreous humour of Cow eyes was used as a biological dressing. The reasons for using the Cow vitreous humour are the availability of this tissue, its resistance to microbial contamination and, most importantly, being a source of collagen and hyaluronic acid, which their effects on wound healing are well known. Currently, vitreous has been considered as biological waste.

Materials & Methods: 35 streptozotocin-Induced diabetic rats (Wistar, male) were randomly divided into five groups. At the back of each mice, three of 6 mm diameter wounds were created. In each mouse, wounds were treated with; betadine as a control group, central and posterior vitreous dressing. Macroscopic and microscopic studies of wounds were performed on days 1, 3, 5, 8 and 14.

Results: Macroscopic studies indicated that at day 1 there were no significant effects on the vitreous treated wounds compared to the control group. On the third day, both central and posterior vitreous significantly reduced the diameter of the wounds ($p < 0.05$), but such effect was not observed on the fifth, eighth and fourteenth days.

Conclusion: Although, the effects of collagen and hyaluronic acid are visible in the first stage of wound healing, in the phase of angiogenesis, the effect of vitreous dressing is not observed. It can be due to the presence of relatively high vitamin C in the vitreous.

Keyword: Vitreous humour, diabetic wound healing, hyaluronic acid, collagen

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