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Topical application of aqueous fraction of *Moringa oleifera* modulates the expression of inflammatory markers and vascular endothelial growth factor (VEGF) during wound healing in diabetic ratsAbubakar Amali Muhammad¹ and Palanisamy Arulselvan²¹Usmanu Danfodiyo University, Nigeria²Ventura Institute of Biosciences, India⁴Universiti Putra Malaysia, Malaysia

Diabetic wound is a complication which affects significant number of people with diabetes. Its treatment is often very difficult and the available treatments are insufficient with limited success in addition to non-affordability. *Moringa oleifera* Lam (*M. oleifera*) from the family Moringaceae (genus *Moringa*) commonly called "Drumstick tree" is a plant traditionally employed in treatment of many ailments and has been scientifically proven to possess hepatoprotective, anti-inflammatory, antioxidant and hypoglycemic action. The present study was conducted to evaluate the effect of aqueous fraction of *M. oleifera* on expression level of some selected inflammatory markers during wound healing in an animal model of diabetes. The study involved topical application of formulated bioactive fraction of *M. oleifera* using full thickness excision wound model in Streptozotocin (STZ) and Nicotinamide (NAD) induced diabetic rats. Thirty-six healthy adult male Wistar were divided into six groups: Two groups of normal and diabetic controls, three groups of 0.5%, 1% and 2% w/w aqueous fraction treated and one group of positive control that received 1% w/w silver sulfadiazine standard drug. Treatments were applied topically in cream form to the skin wounded area for 21 days. Cytokines analyses were performed using ELISA, Western blotting and immunohistochemistry techniques. The three doses (0.5%, 1% and 2%) of bioactive aqueous fractions were found to be significantly effective in enhancing diabetic wound healing through up regulation of Vascular endothelial growth factor (VEGF) protein and down regulation of inflammatory mediators (TNF- α , IL1- β , IL-6, iNOS and COX-2) in diabetic treated animals compared to untreated diabetic control ($p < 0.05$). The downregulation of inflammatory mediators and upregulation of VEGF by aqueous fraction facilitated overall wound healing and closure in diabetic condition. These findings suggest that, topical administration of bioactive aqueous fraction of *M. oleifera* may accelerate wound healing in hyperglycemic condition. *M. oleifera*, inflammatory markers, upregulation, downregulation, diabetic wound.

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