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Wound healing activity study of *Commiphora myrrha* Engl. (Burceraceae); using *in vivo* and *in vitro* experiments

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Based on ethnobotanical claims, the oleo-gum-resin of Commiphora myrrha was investigated for its potential wound healing activity using *in vivo* and *in vitro* models. Wound healing activity was studied by topical application of an ointment of the essential oil 4% (v/w) and the resin 5% (w/w).Toxicity of the formulated ointment upon topical application was studied according to Draize skin irritation test. For anti inflammatory study, carrageen an induced hind paw oedema model was used. The free radical scavenging activity was studied using DPPH assay. The antimicrobial activity of the extracts was examined using disk diffusion and broth dilution technique against several pathogenic bacterial and fungal strains. *The ointment formulations of the extracts were found to be non-irritant at the concentrations used.*Treatment of wound with the ointments prepared from the essential oil and resin of *C. myrrha* exhibited significant ($p<0.05$-0.001) increase in wound contraction rate, shorter epithelization time and higher skin breaking strength as compared to the control. A significant ($p<0.05$) reduction of inflammation was also observed, as compared to the control. The antibacterial and antifungal activity of the oil and the resin was comparable with the standard antibiotics ciprofloxacin and griseofulvin, respectively. From the results obtained in the present study, the essential oil and resin of *C. myrrha* enhance wound healing activity most likely via anti inflammatory, antimicrobial and free radical scavenging effects, supporting the traditional use of this plant as wound healing agent.

Biography

Michael Gebrehiwot has completed his B.Pharm at the age of 22 from Mekelle University in 2008 and B.Sc.. studies from Addis Ababa University, School of Pharmacy on October 2012. He is now an academic staff in Mekelle University; he gives lecture, advice undergraduate students and conduct research. His paper is accepted by Phytopharmacology journal and he also submitted another paper to Journal of Ethnopharmacology.

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