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Micromeria fruticosa (L.) Druce ssp *Serpyllifolia*: Constituents, Antimicrobial and Evaluation of Burn Healing Activity of the Extract and its Isolated Active Constituents in Topical Formulation

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Micromeria fruticosa (L.) Druce ssp *serpyllifolia* is widely used in the Mediterranean regions in treatment of various inflammatory conditions and in wound healing. The purpose of this study was to investigate the constituents of the ethanolic extract of *Micromeria fruticosa* (L.), to evaluate the antimicrobial and the burn healing activities of the extract, its fractions and its isolated compounds and to formulate, characterize and evaluate natural burn-healing topical preparations containing the crude plant extract or the isolated compounds. The LD₅₀ of the ethanolic extract (up to 4 g/kg) indicated its safety. The growth inhibitory activity of the ethanolic extract, and its hexane, chloroform, and *n*-butanol fractions as well the isolated compounds was evaluated *in-vitro* against a set of micro-organisms. The isolated compounds from the chloroform and *n*-butanol fractions were belonging to flavonoids and triterpenes. The ethanolic extract as well its fractions, hexane, chloroform and butanol exhibited variable antimicrobial activities comparable to broad spectrum antibiotic gentamycin used as control. These effects could be attributed to the isolated flavonoids and triterpenes compounds. Burn healing potentiality of the ethanolic extract was also explored against the commercial product and found noticeably significant. Histopathological analysis showed sever endodermal, columnar basal cells and sebaceous gland damage in the untreated burnt animals whereas treated animals showed significant reduction in wound size and improvement in the histological finding. Besides, from the *in vivo* burn healing and histological results, the topical formulae enhanced the skin wound re-epithelialization and speed up the healing process.

Biography

Naglaa Gamil Shehab has graduated from Faculty of Pharmacy, Cairo University, Egypt and has received the PhD from Department of Pharmacognosy, Faculty of Pharmacy, Cairo University, Egypt. She has received the best Master thesis from Egypt and the best research award from Saudi Arabia. Currently, she is working as Associate Professor at Pharmacognosy Department, Faculty of Pharmacy, Cairo University, Egypt. She is member in American Society of Pharmacognosy and also reviewer for many international journals. Her interesting field is in the bioactivity of medicinal plants. She published about 25 papers in international journals.

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