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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

Micromeria fruticosa (L) Druce spp. *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 LD_{50} 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 speeded up the healing process.

Biography

Naglaa G Shehab is an Associate Professor at the Pharmaceutical Chemistry and Natural Products Department, Dubai Pharmacy College, Dubai, UAE. She graduated from Faculty of Pharmacy, Cairo University, Egypt and received the PhD from the same college. She is a member of American Society of Pharmacognosy and Italo-Latin American Society of Ethnomedicine and serving as an Editorial Board Member in *Natural Products Chemistry and Research*. Also, she is a reviewer for many international journals concerning chemistry and biological activity of medicinal plants. She published at least 30 scientific papers also contributed in publication of a scientific book and her field of interest is bioactivity of medicinal plants.

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