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Chemical constituents, antimicrobial, analgesic, antipyretic, and anti-inflammatory activities of *Euphorbia peplus* L.

Ahamed A. Ali, Hanaa M. Sayed, Sabrin R.M. Ibrahim*, Ahamed M. Zaher

Department of Pharmacognosy, Faculty of Pharmacy, Assiut University, Assiut 71526, Egypt,

*Corresponding author: sabrinshaur@gmail.com; Tel: +2-0882141330; Fax: +2-088-2332776

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Abstract

Fifteen compounds were isolated from *Euphorbia peplus* L.. Their structures were established by physical, chemical, and spectral data (UV, IR, MS, and 1D NMR), as well as comparison with authentic samples. The preliminary phytochemical screening of the alcoholic extract was done. GC-MS study of the fatty acid methyl esters of the *n*-hexane fraction was carried out. The antimicrobial, pharmacological, and cytotoxic activities of the different extracts were evaluated. The anti-inflammatory activity was evaluated by using yeast-induced paw edema method at doses of 200 and 400 mg/kg of the extracts. The MeOH and EtOAc extracts give potent anti-inflammatory activity compared with indomethacin. All the extracts exhibited significant analgesic activity in the acetic acid-induced writhing method at dose 400 mg/kg. The tested extracts showed antipyretic activity at doses 200 and 400 mg/kg for each extract. They control the hyperthermia for 4 hr without decrease in activity.

Keywords: *Euphorbia peplus*, Euphorbiaceae, GC-MS, antimicrobial,

Introduction

Family Euphorbiaceae comprises over 7500 species within 283 genera (Boulos, 1980; Tackholm, 1974). The genus *Euphorbia* consists of more than 1600 species growing in nearly all types of climates throughout the world (Boulos, 1980). The wide spread plants of the genus *Euphorbia* are rich source of sterols, flavonoids, diterpenoids, and triterpenes with diverse structures (Jassbi, 2006; Ferreira et al, 1993; Gotta et al, 1984; Ivanovaa et al, 2003; Rizk et al, 1980). *Euphorbia peplus* L. is originally native to Europe and North Africa (Zhi-Qin et al, 2010). Its milky sap has long been used as a remedy for the treatment of skin cancers especially non-melanoma skin cancer (NMSC) and the active compounds have been determined to be diterpene esters (Ramsay et al, 2011). These esters were cytotoxic against a variety of cancers both *in vivo* and *in vitro* and are the subject of ongoing research around the world. Previous phytochemical studies of *E. peplus* led to the isolation of diterpenes (Zhi-Qin et al, 2010; Homanna et al, 1999; Jakopovic et al, 1998; Mucsi et al, 2001), flavonoids (Jas-

