

Phytochemical investigation on *Euphorbia macrostegia* (persian wood spurge)

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Background and Aims: Euphorbia species have been used in folk medicine for treatment of diarrhea, gonorrhea, migraines, cure skin diseases, wart remover, inflammation and swellings. The chemical constituent of some species of genus Euphorbia have been found to include macrocyclic and polycyclic diterpenoids and triterpenoids that shows different biologically activities such as; enzyme inhibition (α -glycosidase, urease, HIV-1 reverse transcriptase), tumor promoting, DNA damage activity etc. These features promoted us to investigate the chemical constituents of Euphorbia macrostegia.

Methods: The aerial part of the plant was extracted by maceration in methanol and dichloromethane (DCM) respectively. The crude extracts were mixed together and subjected to Liquid-liquid extraction. The extraction has afforded four different phases, from non polar to polar: n-Hexane, DCM, 1-butanol and water. The hexane layer was subjected to isolation and purification of its chemical components using column chromatography over silica gel, flash column and thin layer chromatography. The structure of all compounds were elucidate using spectroscopy methods including 1 and 2D-NMR, ¹H NMR, ¹³C NMR, MS, IR and by comparison with the literature survey.

Results: Four cycloartane triterpenoids, β -sitosterol, and four oxidized unsaturated fatty acids were suggested for the structure of the purified compounds

Conclusions: The triterpenoids as the chemical markers of the genus Euphorbia have been identified, but the presence of oxidized unsaturated fatty acids is reported rarely in this genus.

Keywords: Keywords: Euphorbiacea; *Euphorbia macrostegia*; Cycloartane Triterpenoids; Oxidize unsaturated fatty acids