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Fatty Acid Analysis and Biological Activity of Jordanian Propolis

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Abstract

Propolis is a resinous natural product collected by bees (*Apis mellifera*) from tree exudates which is widely used in folk medicine[1]. Reports on Jordanian Propolis reveal the presence of new chemical compound 4(Z)-1-3-dihydroxyeupha-7,24-dien-26-oic acid[2] along with other compounds like pinobanksin-3-O-acetate, pinocemberin, chrysin[3] and lignoceric acid[2]. The present study was carried out to investigate the fatty acid composition, antioxidant and xanthine oxidase inhibition activity of Jordanian Propolis, collected from Al-Ghour region. The hexane extract of Jordanian Propolis contains different fatty acids, which are reported first time, using GC-FID. The major fatty acid identified were palmitic acid (44.5%), Oleic acid (18:1Δ^{9}*cis*, 24.6%), Arachidic acid (7.4%), Stearic acid (5.4%), linoleic acid (18:2$\Delta^{9\text{-}12}$*cis*, 3.1%), caprylic acid (2.9%), lignoceric acid (2.6%), *cis*-11,14-eicosadienoic acid (20:2$\Delta^{11\text{-}14}$*cis*, 2.4%), palmitoleic acid (1.5%), cis-11-eicosenoic acid (1.2%), α–linolenic acid (18:3$\Delta^{9\text{-}12\text{-}15}$*cis*, 1.1%), *cis*-13,16-docosadienoic acid (22:2$\Delta^{13\text{-}16}$*cis*, 1.0%), along with minor constituents like saturated fatty acids. Antioxidant properties of the hexane extract were determined via DPPH radical scavenging, β-carotene bleaching assay and NO scavenging assay. The extract produced significant antioxidant activity *in-vitro*. The extract also exhibit appreciable xanthine oxidase inhibitory activity *in-vitro*.

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