Chemical Constituents, Anti-Inflammatory, and Antioxidant Activities of Anisotes trisulcus

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Abstract:

Anisotes trisulcus (Forssk.) Nees. (family Acanthaceae) aerial part is used in folk medicine in the Arabian peninsula for treatment of hepatic conditions. It showed different activities such as antibacterial, hepatoprotective, and cytotoxicity. It is a rich source of alkaloids and is used as an antidiabetic, bronchodilator, hypotensive, and local anesthetic. To the best of our knowledge, there is no report on the phenolic constituents of A. trisulcus. Therefore, this study aims to identify the constituents and establish antioxidant and anti-inflammatory activities of the total methanolic extract and different fractions. One new benzoyl flavonol: 7,8,3’-trihydroxy-5-methoxy-4’-benzoyl flavonol (5), along with eight known compounds: α-amyrin (1), β-sitosterol (2), stigmasterol (3), (2S,3S,4R)-2[(2’R)-2’-hydroxytetracosanoyl amino]-octadecane-1,3,4-triol (4), allopateuletin (6), veratric acid (7), vanillic acid (8), and β-sitosterol-3-O-β-D-glucopyranoside (9) were isolated from A. trisulcus aerial parts. Their structures were established by physical, chemical, and spectral data (UV, IR, MS, and 1D NMR), as well as comparison with authentic samples. The anti-inflammatory activity of the total methanolic extract and different fractions was evaluated using carrageenan-induced paw edema method at a dose of 400 mg/kg. Also, the antioxidant activity was determined using DPPH assay at concentrations 0.25, 0.5, and 1 mg/mL. The total MeOH extract and EtOAc fraction showed high antioxidant activity 75% and 68% (Conc. 1 mg/mL), respectively while, the n-hexane and EtOAc fractions exhibited significant anti-inflammatory effects.

Keywords:

Anisotes trisulcus; Acanthaceae; Flavonol; Antioxidant; Anti-inflammatory

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