

Isolation and Identification of Two Flavonoids from *Artemisia diffusa* Growing Wild in Iran

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ABSTRACT

The extract of the aerial parts of *Artemisia diffusa*, growing wild in Iran, afforded two known flavonoids. The structures were elucidated by high field ¹H-NMR techniques.

KEYWORDS: *Artemisia diffusa*, Flavonoide, extract, *Compositae*

INTRODUCTION

The genus *Artemisia* has always been of great botanical and pharmaceutical interest and is useful in traditional medicines for a treatment of the variety of diseases and complaints. This genus including some Iranian species has been studied chemically and present of monoterpenes[1], sesquiterpenes[2,3], especially sesquiterpene lactones [1,4,5] and essential oils [6-10] were reported. This genus is not very uniform and the chemistry is somewhat diverse. However most species contain sesquiterpene lactones, especially 11,13- dihydro derivatives. In another study, The extract of the aerial parts of *A. diffusa* Krasch ex P. Poljakov collected in the Province of Khorassan (Iran) afforded, in addition to several eudesmanolides, sesquiterpene lactone (Tehranolide), with an endoperoxide group that probably has the same effect as the antimalarial agent artemisinin[4]. In previous study, The water-distilled essential oil of *Artemisia diffusa* Krasch. ex Poljak. growing wild in Iran was analyzed by GC and GC/MS. Among the twenty identified components constituting 91.3% of the oil, camphor (35.0%) and 1,8-cineole (25.7%) were found to be the major constituents[11]. In this study, the extract of the aerial parts of *Artemisia diffusa* afforded two known flavonoids. Flavonoids have been used as antioxidant, chemopreventive and chemosensitizing agents[12]. The structures were elucidated by high field ¹H-NMR techniques.

MATERIAL AND METHODS

Plant material

The aerial part of *Artemisia diffusa* collected in October 2011 from Ahmad Abad and Zaman Abad, North East of Iran, Province of Khorassan, Iran. Voucher specimens have been deposited at the Herbarium of the Research Institute of Forests and Rangelands, Tehran.

Extraction and isolation: Ground aerial parts of *A. diffusa* (900 g) were extracted with Et₂O/MeOH/petroleum ether (1:1:1) (2 × 6L) at room temperature for 72 h. Evaporation at reduced pressure furnished (35 g) of crude extract, which was suspended in EtOH (600 ml), diluted with H₂O (500 ml) and extracted successively with hexane (2 × 650 ml) and CHCl₃ (2 × 450 ml). Evaporation of the CHCl₃ extract at reduced pressure furnished (13.5 g) of residue, which was column chromatographed over silical gel (350 mg, 70-230 mesh) using hexane and increasing amounts of EtOAc (0-100 %) and EtOAc/MeOH (9:1) to afford 28 fractions. These were grouped according to their TLC profiles two fractions (18 and 19) showing good result. Fractions 18+19 (400 mg) were reunited and rechromatographed on silica gel (230-400 mesh) to give 20 fractions. Fractions 12 and 14 afforded two crystals. The two Compounds were identified by the 500 MHz ¹H NMR spectra. The isolated compounds were identified as two flavonoids.

RESULTS AND DISCUSSION

The extract of the aerial parts of *Artemisia diffusa*, growing wild in Iran, afforded two known flavonoids (Figure. 1). The structures were elucidated by high field ¹H-NMR technique (Figure. 2).

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