

## 6-HYDROXYFLAVONOIDS FROM *PULICARIA DYSENTERICA* (COMPOSITAE)

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**Key Word Index**—*Pulicaria dysenterica*; Compositae; Inuleae; 6-hydroxykaempferol methyl ethers; quercetagenin methyl ether; 6-hydroxyapigenin; esculetin.

**Abstract**—Methyl ethers of 6-hydroxykaempferol and quercetagenin, together with scutellarein, were isolated from the leaves of *Pulicaria dysenterica*. The pattern of compounds is different from that previously recorded in the flowers.

We report here the isolation and identification of five 6-hydroxyflavonoids, 6-hydroxykaempferol 3,7-dimethyl ether [1] (10 mg), 6-hydroxykaempferol 3-methyl ether 6-glucoside [2] (12 mg), quercetagenin 3,7-dimethyl ether [1] (15 mg), scutellarein [3] (5 mg) and 6-hydroxykaempferol 3,6,7-trimethyl ether (penduletin) [4] (5 mg) and the coumarin esculetin (3 mg) from 500 g of dried leaves of *Pulicaria dysenterica*. Previously, quercetagenin 3,7,4'-trimethyl ether (oxyanin B) and kaempferol 3-glucoside were obtained from the flowers of this plant [5]. While 6-hydroxyflavonols have been recorded in several other members of the Inuleae [6], especially in *Helichrysum*, this is the first time that this particular range of compounds has been encountered in the tribe.

### EXPERIMENTAL

Leaves of *P. dysenterica* (Compositae-Inuleae) were collected in Istanbul in July 1978; the plant was identified by Prof. Dr. A. Baytop and a voucher (ISTE 41714) is deposited in the Herbarium of the Faculty of Pharmacy, University of Istanbul.

An aq. EtOH extract of the dried leaves (500 g) was concd *in vacuo* to 100 ml and the concentrate was extracted with *n*-hexane, CHCl<sub>3</sub> and EtOAc. Two dimensional PC showed that the flavonoids were mainly in the CHCl<sub>3</sub> and the EtOAc concentrates (0.5 and 1.5 g, respectively). Since these two concentrates contained the same flavonoids, they were combined and fractionated on a polyclar (4 × 40 cm) column using Egger's solvent. The polarity of the eluant was gradually increased by

reducing the percentage of CHCl<sub>3</sub>. The compounds obtained from the polyclar column were purified on a Sephadex LH-20 column using MeOH.

All compounds were identified by UV and MS (except 6-hydroxykaempferol 3-methyl ether 6-glucoside) spectral data, colors in UV (366 nm) light, with and without exposure to NH<sub>3</sub>, and when sprayed with NA reagent. In addition, all compounds were co-chromatographed with standard samples.

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