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CONSTITUENTS OF *ANTENNARIA DIOICA*

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Antennaria dioica grows in the northeast region of Turkey (1) and is used for the ailments of bile, bronchitis, phthisis, and coughs (2,3). A chromatographic research is reported for *A. dioica* (4), and luteolin, luteolin 7-glucoside, and luteolin 4'-glucoside are recorded to be present in the plant (5). In this work, apigenin, apigenin 7-glucoside, apigenin 4'-glucoside, luteolin 7,4'-diglucoside, ursolic acid, and chlorogenic acid have been isolated from *A. dioica* for the first time.

EXPERIMENTAL

PLANT MATERIAL.—*Antennaria dioica* (L.) Gaertner (syn. *Gnaphalium dioicum* L.) was collected from Zigana Pass between Trabzon and Gümüşhane in June 1980 (voucher 44674) and identified by Prof. Dr. A. Baytop (Department of Pharmaceutical Botany, Faculty of Pharmacy, University of Istanbul).

EXTRACTION AND ISOLATION OF SUBSTANCES.—The dried and powdered herb (400 g) was worked up by standard procedures (6,7). The compounds obtained were apigenin (13 mg), luteolin (22 mg), a mixture of apigenin 7-glucoside and luteolin 7-glucoside (34 mg), apigenin 4'-glucoside (8 mg), luteolin 4'-glucoside (65 mg), luteolin 7,4'-diglucoside (11 mg), as well as ursolic acid (17 mg) and chlorogenic acid (6 mg). Caffeic acid was also obtained from the plant with preparative pc, and β -sitosterol and lupeol were identified chromatographically.

The substances were identified with authentic samples and spectral analysis. The glycosides were subjected to acid hydrolysis. Ursolic acid was identified by its melting point and its spectra. Full details of the isolation and identification are available on request to the author.

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