

COSTUNOLIDE AND FLAVONOLS FROM *GOCHNATIA FOLIOSA* VAR. *FASCICULARIS*FRANCESCA FAINI, RENÉ TORRES,¹ and MARIANO CASTILLO*

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As part of a systematic chemical investigation of Chilean Compositae (1-3), we examined the secondary chemistry of a member of the genus *Gochnatia* (tribe Mutisieae, subtribe Gochnatiinae): *Gochnatia foliosa* var. *fascicularis* (Don) Cabrera. Stems and leaves yielded a germacrane-type lactone, costunolide, and four flavonoids: 3,7-dimethylkaempferol, 3,3'-dimethylquercetin, 3'-methylquercetin, and 3,7-dimethylquercetin. Five other members of the South American genus have been chemically analyzed (4, 5). A flavonol and costunolide have also been reported from *Gochnatia paniculata* (5).

EXPERIMENTAL

PLANT MATERIAL.—*G. foliosa* var. *fascicularis* was collected during October (Spring) 1981, in Cajón del Maipo, Chile. The plant material was identified by Prof. Eugenia Navas (Universidad de Chile). A voucher specimen was deposited in the Herbarium of Facultad de Ciencias Básicas y Farmacéuticas, Universidad de Chile.

EXTRACTION AND ISOLATION.—Dried stems and leaves (65 g) were initially extracted with petroleum ether (60-80°) followed by extraction with EtOH. Both extracts were concentrated *in vacuo*. The petroleum-ether residue (5 g) was chromatographed over a silica gel column with petroleum ether containing increasing amounts of EtOAc affording costunolide (200 mg). The ethanolic residue (20 g) was partitioned between H₂O and CHCl₃. The CHCl₃ fraction was chromatographed over a silica gel column, eluted with CHCl₃-MeOH (96:4). Three flavonoids were isolated: 3,7 dimethylkaempferol (16 mg), 3,3'-dimethylquercetin (35 mg), and 3,7-dimethylquercetin (40 mg). The aqueous fraction, a complex mixture of polar compounds, was hydrolyzed with 2 N HCl and extracted with CHCl₃. The CHCl₃ residue afforded a fourth flavonoid: 3'-methylquercetin (21 mg).

IDENTIFICATION OF THE COMPOUNDS.—Costunolide was identified by comparison of spectroscopic and physical data with published values (6-8). All flavonoids were identified by comparison of uv, pmr, and ms with published data (9).

ACKNOWLEDGMENTS

The authors thank Ximena Rossi and Claudina Solís for technical assistance.

This work was supported by the Organization of American States and DDI (Universidad de Chile, grant Q-627 791).

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Received 13 May 1983

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