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p-HYDROXYBENZALDEHYDE DANS LE FRUIT DE *CORDIA BOISIERI*

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Key Word Index—*Cordia boisieri*; Boraginaceae; anacahuite; D(+)-pinitol; *p*-hydroxybenzaldehyde.

Plante. *Cordia boisieri* A.D.C. ('anacahuite'), récoltée dans les environs de Monterrey en juillet de 1972. *Etudes antérieures.* Sur la fleur.¹

Travail actuel. La chromatographie sur colonne d'acide silicique de l'extrait éthanolique du fruit a permis d'isoler le sitostérol et le *p*-hydroxybenzaldéhyde, identifiés au moyen de leurs spectres IR, RMN et par comparaison avec des échantillons authentiques. L'aldéhyde *p*-hydroxybenzoïque n'a pas été décrit dans les travaux antérieurs sur le genre *Cordia*. La racine extraite par l'EtOH et par l'eau libère de grandes quantités de D(+)-pinitol, que l'on isole par cristallisation fractionnée, et que l'on identifie par comparaison avec un échantillon authentique.¹ La racine contient aussi des petites quantités d'allantoïne, que l'on avait trouvé en grande quantité dans la partie aérienne.

¹ DOMINGUEZ, X. A., ESCARRIA, S. et BUTRUILLE, D. (1973) *Phytochemistry* **12**, 724.

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EXTRACTIVES OF *ARTEMISIA SCOPARIA*

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Key Word Index—*Artemisia scoparia*; Compositae; scoparone; vanillin; capillin; 1-phenyl-2,4-hexadiyne-1-ol.

Plant and source. *Artemisia scoparia* collected south of Belgrade was used. (Voucher specimen No. 223-a is kept in the Faculty of Sciences, Department of Botany, Belgrade.) *Previous work.* Scoparone,¹ chlorogenic acid from water-soluble fraction of the extract,² caryophyllene epoxide.³

Present work. *Leaves and flower heads.* Dried material was extracted with CHCl₃ using standard techniques.⁴ The crude extract was chromatographed on silica gel with C₆H₆–

¹ SINGH, G., NAIR, G. V. and AGGARWAL, K. P. (1954) *Chem. Ind. (London)* (42), 1294.

² HU, J.-S., LI, P.-C. and CHEN, M. (1965) *Yao Hsueh Hsueh Pao* **12** (5), 289; (1965) *Chem. Abstr.* **63**, 6021.

³ THAPPA, R. K., VASHISHT, V. N., SINGH, JAGDEV and SHARMA, R. K. (1970) *Current Sci.* **39** (8), 182.

⁴ GEISSMAN, T. A. and TURLEY, R. (1965) *J. Org. Chem.* **29**, 2553.

EtOAc affording capillin,⁵ 1-phenyl-2,4-hexa-diyne-1-ol,⁵ vanillin, and scoparone.¹ There is no previous record of the isolation of the first three compounds from *A. scoparia*. All compounds were identified by direct comparison with authentic materials, by m.m.p., co-chromatography (TLC) and IR and NMR analysis.

⁵ BOHLMANN, F. and KLEINE, K. (1962) *Chem. Ber.* **95**, 39.

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GERMACRANOLIDES FROM *CENTAUREA SERIDIS**

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Key Word Index—*Centaurea seridis*; Compositae; sesquiterpene lactones; germacranolides; artemisiifolin; C₁₅-acetylartemisiifolin; salonitolide; coumarins; scopoletin.

In connection with our investigations on *Centaurea* (Compositae, tribe Cynareae) we report here the isolation and structure determination of three germacranolides from *Centaurea seridis* L., a species widely distributed on the Mediterranean Spanish coast.¹

Column chromatography of the alcoholic extract of the aerial parts yielded three bitter tasting compounds. The least polar one, C₁₅-acetylartemisiifolin (Ib), of empirical formula C₁₇H₂₂O₅, M⁺ 306, shows IR bands indicative of OH, double bond, acetate and α -methylene- γ -lactone. The last group was characterised by means of the pyrazoline derivative II and by NMR: the spectrum of Ib exhibits a doublet at 3.60 (1H, *J* 3 Hz) and a very deformed signal at 3.78 τ (1H). The mass peaks at M⁺ - 42 and M⁺ - 60, together with the C₁₇ formula and IR and NMR data indicate that Ib is a C₁₅ lactone monoacetate. In addition to the above mentioned signals the NMR spectrum shows a 3-protons singlet at 8.30 τ assigned to a vinylic Me group. On the whole, the spectrum is poorly resolved; this is a feature characteristic of germacranolides lactonized at C₈ which in solution at room temperature exist in several conformations.² Saponification of Ib gave artemisiifolin (Ia), whose physical and spectral data agree with those given by Porter *et al.*² Ia was also isolated from the plant. It proved to be identical in all respects with the compound prepared from cnicin.² Hydrogenation of Ib with NaBH₄ yielded salonitolide (IV),³ identical with the third germacranolide isolated from the plant. IV was also obtained by hydrogenating Ia over Pd-C, thus confirming Mabry's opinion on the identity of dihydroartemisiifolin and salonitolide.²

* Part XIX in the series "Constituents of Compositae". For Part XVIII see GONZÁLEZ, A. G., BERMEJO, J., BRETÓN, J. L. and FAJARDO, M. (1973) *Anal. Quim.* **69**, 667.

¹ WILLKOMM, M. and SANGE, J. (1870) *Prodomus Florae Hispanicae*, Vol. II, p. 141, Schweizerbart, Stuttgart (reprinted 1972 by Strauss & Cramer, Stuttgart).

² PORTER, T. H., MABRY, T. J., YOSHIOKA, H. and FISCHER, N. H. (1970) *Phytochemistry* **9**, 199.

³ SUCHY, M., HÉROUT, V. and ŠORM, F. (1965) *Coll. Czech. Chem. Commun.* **30**, 2863.