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## EUPHORBIACEAE

# FLAVONOIDS AND FATTY CONSTITUENTS OF *ADENOPELTIS COLLIGUAYA*

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*Plant. Adenopeltis colliguaya* Bert. *Source.* Leaves collected in Rocoto, Concepcion, Chile in January (summer) and September (spring).

*Extraction.* (a) *Light petroleum.* Dried, powdered leaves (1·7 kg) extd. with light petroleum (60–80°) in a Soxhlet. After concn a dark green extract was obtained (74 g); a portion (30 g) in light petroleum was chromatographed on silica gel (350 g) and eluted with light petroleum (*A*) with light petroleum–benzene (*B*, *C*) and with benzene–EtOH (*D*).

(*A*) Recrystallized from benzene–MeOH afforded a waxy solid (99 mg). Preparative GLC afforded, as the major component, *nonacosane*,[1] m.p. 42–44°, $\nu_{max}$ (Nujol) 1461, 1377, and 720 $cm^{-1}$. Its MS showed a parent ion at *m/e* 408 and a consistent fragmentation pattern. (*B*) Recrystallization from benzene afforded a solid (260 mg), m.p. 57–59°, $\nu_{max}$ (KBr) 2938, 2858, 1735, 1465, and 1370 $cm^{-1}$, with a positive test to Brady's reagent and MS peaks at *m/e* 480, 465, 452, 424, 410, 409, 408, 396, 381, 218, 189, 157, 203, 101, 88, and 71. This ketonic fraction was not investigated further. (*C*). Recrystallization from light petroleum–MeOH gave a solid, m.p. 58–60°, $\nu_{max}$ (KBr) 3390, 2933, 2865, 1471, 1379, 1058, 730, and 720 $cm^{-1}$. Its MS fragmentation pattern was consistent for a mixture of *tetratriacontanol*, *dotriacontanol*, and *triacontanol*, with the latter predominating.[2] (*D*). *Sitosterol* (190 mg), m.p. (MeOH) 138°, $\lambda_{max}$ (cyclohexane) 205 nm (end absorption), $\nu_{max}$ (KBr) 3475, 1645 $cm^{-1}$. Its NMR spectrum and X-ray diffraction pattern were identical to those of an authentic sample. Its acetate also corresponded in props to an authentic sample.

(b) *Aqueous methanol extract.* The dried, powdered leaves (200 g) extd. with hot aq. MeOH (1:4), giving a gummy solid (125 g) on concn. Chromatography through silica gel, using benzene–EtOAc–EtOH mixtures, was followed by TLC on cellulose, using BAW as mobile phase,[3] gave the following flavonoids (elution solvent in parentheses): *astragalin*[4] (9:1, EtOAc–EtOH), acid hydrolysis[5] gave kaempferol and glucose; *avicularin*[6] (9:1,

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EtOAc–EtOH) (43 mg), $[\alpha]_D^{20}$ −161° (*c* 1·0, EtOH), acid hydrolysis gave quercetin and arabinose; *quercitrin*[7] (25 mg) (7:3, EtOAc–EtOH), m.p. 183–185°, acid hydrolysis gave quercetin and rhamnose; *meratin*[8] (28 mg) (1:4, EtOAc–EtOH), m.p. 182–183°, acid hydrolysis afforded quercetin and glucose; *rutin*[9] (33 mg) (EtOH), m.p. 178°, acid hydrolysis afforded quercetin, rhamnose and glucose. All the flavonoids were identified by direct comparison with authentic samples and by UV spectral analysis.

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*Key Word Index—Adenopeltis colliguaya*; Euphorbiaceae; kaempferol and quercetin glycosides; sitosterol; hydrocarbons.

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# TRITERPENOIDS AND STEROIDS OF *EUPHORBIA PILULIFERA*

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*Plant. Euphorbia pilulifera. Previous work.* Alkaloids from the latex.[1]

*Present work.* Leaves and stems. The neutral fraction of hot hexane extract was chromatographed on an $Al_2O_3$ column. The following pentacyclic triterpenes and sterols were identified: taraxerol only in free form (m.p., acetate and ketone,[2] TLC, GLC and IR); taraxerone (m.p.,[2] TLC, GLC and IR). α- and β-Amyrin (10:1) were identified by GLC in the esterified form only. Campesterol (20%), stigmasterol (10%) and sitosterol (70%) occurred in both free and esterified forms (TLC and GLC) in mixtures. No euphol, euphorbol, tirucallol or other tetracyclic triterpenes could be detected in this plant.[3]

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*Key Word Index—Euphorbia pilulifera*; Euphorbiaceae; taraxerone; taraxerol; α- and β-amyrin; steroids.