

and 177 (M-15-28). The NMR spectrum is described above. A specimen of authentic 6-methoxy-6,7-methylenedioxy coumarin had m.p. 219–221°, and a mixture melted at 221–223°. The i.r. spectra were identical.

The more polar fractions from the chromatographic column gave oily residues from which no crystalline materials have been obtained. Rechromatography of selected fractions was fruitless.

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TRITERPENOID AND STEROID CONSTITUENTS OF *ASTER BACCHAROIDES*

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Plant. *Aster baccharoides* Steetz.

Occurrence. On barren hills in Hong Kong Island, and on the adjacent Chinese mainland.

Uses. Not known.

Previous work. On sister species, reported the occurrence of flavonoids,^{1–3} coumarins,⁴ polyacetylene compounds,^{5–9} saponin^{10–12} and triterpenoids.^{1,13}

Leaves. (Extracted light petroleum, chromatographed—alumina.) β -amyrenyl acetate $C_{32}H_{52}O_2$ (0.042% of leaves, m.p., mixed m.p., $[\alpha]_D$, and i.r. of acetate and alcohol): from light petroleum fractions. Friedelin $C_{30}H_{50}O$ (0.015%; m.p., mixed m.p., $[\alpha]_D$, and i.r.): from light petroleum–benzene (9:1) fractions. Triterpene alcohol mixture from light petroleum–benzene (7:3) fractions, separated by chromatography on argentized kieselgel into β -amyrin $C_{30}H_{50}O$ (0.018%; m.p., mixed m.p., $[\alpha]_D$, i.r., and TLC—argentized kieselgel) and lupeol $C_{30}H_{50}O$ (0.003%; m.p., mixed m.p., $[\alpha]_D$, i.r. and TLC—argentized kieselgel). α -Spinasterol $C_{29}H_{48}O$ (0.006%; m.p., mixed m.p., $[\alpha]_D$, NMR, and mass spectra of alcohol and acetate): from light petroleum–benzene (2:3) fractions.

Stems. (Extracted light petroleum): concentrated extract deposited colourless crystals. (Crystals in light petroleum–benzene, chromatographed—alumina): Friedelin (0.054% of stems): from light petroleum–benzene (1:1) fractions. Friedelan-3 β -ol $C_{30}H_{52}O$ (0.027%;

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m.p., mixed m.p., $[\alpha]_D$, and i.r.): from benzene fractions. (Filtrate from crystals chromatographed—alumina): β -amyrenyl acetate (0.0047%): from light petroleum fractions. *Triterpene ketone mixture* from light petroleum–benzene (4:1) fractions, separated by fractional recrystallization from the same mixed solvent into *friedelin* (0.10%): in the less soluble, and *shionone* $C_{30}H_{50}O^{1,13-15}$ (0.046%: m.p., mixed m.p., $[\alpha]_D$, i.r. NMR, and analysis): in the more soluble fractions. *Friedelan-3 β -ol* (0.003%): from light petroleum–benzene (7:3) fractions. β -*amyrin* (0.001%): from light petroleum–benzene (2:3) fractions. α -*Spinasterol* (0.033%): from light petroleum–benzene (1:4) fractions.

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EBENACEAE

CONSTITUENTS OF *DIOSPYROS PEREGRINA* FRUIT AND SEED

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(Received 23 June 1970)

Plant. *Diospyros peregrina* Syn. *D. embryopteris*, *D. malabarica*.

Uses. Medicinal, pectin as sizing material and tannin for dyeing and tanning industry.^{1,2}

Previous work. Leaves.³ On sister species.⁴⁻⁹

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