

sister species from Argentina¹ and hordenine identified (GC-MS) in sister species from Uruguay.²

Present work. TLC screening³ detected alkaloids. Chloroform extraction of 1.04 kg of freeze-dried, pulverized, and defatted material yielded 5.278 g of *N*-methyltyramine HCl (m.p. 148–149°, m.m.p. 147–149°, reference m.p. 146–147°, IR, 0.51% yield) from fractions A and C without using the ion-exchange column.⁴ Traces of tyramine and hordenine were identified via two-dimensional cochromatography⁵ in the mother liquors. *N*-methyltyramine was, by far, the major alkaloid observed in three different collections of this species. This is the first report of the crystallization of an alkaloid from the *Opuntia* genus. A previous report⁶ regarding the isolation of mescaline from *O. cylindrica* erroneously utilized *Trichocereus pachanoi*.⁷

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ELLAGIC ACIDS FROM *EUPHORBIA CORNIGERA* AND *E. WALLICHII*

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Key Word Index—*Euphorbia cornigera*; *E. wallichii*; Euphorbiaceae; ellagic acid; 3,3'-di-*O*-methylellagic acid.

Plants. *Euphorbia cornigera* Boiss. (Peshawar Herbarium No. 4374) and *Euphorbia wallichii* Hook. f. (Herbarium No. 48) collected from Murree Hills, Rawalpindi.

Uses. Medicinal properties have been reported from sister species.¹ *Previous work.* Sister species.²

Euphorbia cornigera. Alcoholic extract of the roots of *E. cornigera* deposited crystals of *ellagic acid*, m.p. 360° (dec) (Found: C, 55.92; H, 2.22. C₁₄H₆O₈ requires: C, 55.64; H,

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2.00%). $\nu_{\max}$ 3050, 1720, 1655, 1620 cm^{-1} . *Ellagic acid tetraacetate*, m.p. 340–341° (Found: C, 55.96; H, 3.15; MeCO- , 36.32. $\text{C}_{22}\text{H}_{14}\text{O}_{12}$ requires: C, 56.18; H, 3.00; $4 \times \text{MeCO-}$, 36.57%). $\nu_{\max}$ 1780, 1745, 1610 cm^{-1} . NMR: (TFA) 90MHz τ 1.7 (2H), τ 7.45 (6H, MeCO-), τ 7.50 (6H, MeCO-), M^+ m/e 470.

The extract after removal of ellagic acid was chromatographed on an alumina column (Brockmann, E. Merck) to give 3,3'-*di-O-methyl-ellagic acid*, m.p. 336–338° (Found: C, 57.90; H, 3.16; $-\text{OMe}$, 18.23. $\text{C}_{16}\text{H}_{10}\text{O}_8$ requires: C, 58.19; H, 3.05; $2 \times -\text{OMe}$, 18.78%). $\nu_{\max}$ 3200, 1725, 1610 cm^{-1} superimposable with the IR of 3,3'-*di-O-methyl-ellagic acid* obtained from *E. wallichii*.

Euphorbia wallichii. Alcoholic extract of the roots of *E. wallichii* deposited crystals identified as 3,3'-*di-O-methyl-ellagic acid*, m.p. 335–337° (Found: C, 57.72; H, 3.1. $\text{C}_{16}\text{H}_{10}\text{O}_8$ requires: C, 58.19; H, 3.05%). $\nu_{\max}$ 3200, 1725, 1610 cm^{-1} . 3,3'-*di-O-Methyl-ellagic acid diacetate*, m.p. 300–302° (Found: C, 58.14; H, 3.20. $\text{C}_{20}\text{H}_{14}\text{O}_{10}$ requires: C, 57.98; H, 3.41%). $\nu_{\max}$ 1760, 1605. NMR: (TFA) 90MHz τ 1.82 (2H), τ 5.58 (6H, $-\text{OMe}$), τ 7.45 (6H, MeCO-), M^+ m/e 414.

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DEHYDRO-1,8-CINEOLE: A NEW MONOTERPENE OXIDE IN *LAURUS NOBLIS* OIL*

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Key Word Index—*Laurus nobilis*: Lauraceae; essential oil; monoterpene oxide; dehydro-1,8-cineole.

The essential oil of *Laurus nobilis* L. has been the subject of a number of investigations.^{1–10} In each case 1,8-cineole was found to be the major component. During a recent

* Part XVI in the series "Essential Oils and Their Constituents". For Part XV see (1974) *Phytochemistry* **13**, to be published.

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