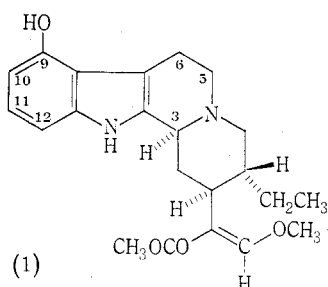


THE IDENTIFICATION OF A LEAF ALKALOID OF *NEONAUCLEA*
SCHLECHTERI (RUBIACEAE) AS GAMBIRINE
 (9-HYDROXYDIHYDROCORYNANTHEINE)

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Neonauclea schlechteri (Val.) Merr. & Perry, a large tree of the family Rubiaceae, occurs as a rain forest species in New Guinea. Despite positive field tests the bark afforded negligible amounts of alkaloids on laboratory extraction, but the leaves gave a low yield of (c. 0.02%) alkaloids. Only one major constituent has been isolated by chromatography, and it has been shown to be identical with the alkaloid gambirine (9-hydroxydihydrocorynantheine) (1). Gambirine

was originally isolated from leaves of *Uncaria gambier* Roxb. (family Rubiaceae).¹

Experimental

Leaves of *N. schlechteri* were collected from a tree (50 ft high, 3 ft in diameter) growing in rain forest along the Lae-Bulolo Road in the Oomsis Creek area (long. 146° 47' E., lat. 6° 43' S.). A voucher specimen TGH 10512 has been kept at the Herbarium, Lae, New Guinea. Milled, dried leaves (6.8 kg) were extracted by continuous percolation with methanol, and the extract was concentrated at 40° under reduced pressure. The concentrate was diluted with water and the pH adjusted to c. 2 by addition of dilute sulphuric acid. The acidified solution was extracted once with hexane, and then basified by addition of ammonia. Extraction with diethyl ether was then continued until a test portion of the extract no longer gave a positive test with Mayer's reagent. The ether solution was repeatedly extracted with dilute (1N) sulphuric acid until the acid extracts were negative to Mayer's reagent, and the acid extracts were basified with ammonia and extracted with chloroform. The chloroform extracts were dried and, on evaporation of the chloroform, 5.38 g crude alkaloids were obtained. The crude alkaloids at this stage contained much non-alkaloidal material and the actual yield of alkaloids is estimated to be c. 0.02%. When a 1.0 g sample of the crude alkaloids was chromatographed on alumina (Spence H which had been neutralized by treatment with ethyl acetate), a series of fractions eluted by benzene and mixtures of benzene-chloroform consisted largely of waxy non-alkaloidal material. Elution with chloroform gave a series of fractions (c. 0.15 g) which crystallized readily on trituration with a small volume of chloroform or acetone. Crystallization from acetone gave the alkaloid as colourless needles, m.p. 162–165°, $[\alpha]_D +45^\circ$ (c. 0.10 in MeOH) (Found: C, 67.9; H, 7.5; N, 6.3. Calc. for

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¹ Merlini, L., Mendelli, R., Nasini, G., and Hesse, M., *Tetrahedron Lett.*, 1967, 1571.

$C_{22}H_{28}N_2O_4 \cdot CH_3COCH_3$: C, 67.9; H, 7.7; N, 6.3%). The n.m.r. spectrum of the alkaloid indicated the presence of approximately one molecular equivalent of strongly retained acetone of crystallization. There was no depression of m.p. on mixing with an authentic specimen of gambirine, and the i.r., n.m.r., and mass spectra were identical with those of gambirine.

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