ALKALOIDS OF *LITSEA LEEFEANA* AND *CRYPTOCARYA FOVEOLATA* (LAURACEAE)

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Both *Litsea leefeana* Merr., commonly known as brown bolly gum, and *Cryptocarya foveolata* White & Francis are Queensland rain forest trees belonging to the family Lauraceae. The alkaloids isolated in 0·07% yield from the leaves of *L. leefeana* consist largely of the aporphine alkaloids boldine and laurolitsine, and the 1-benzyl-1,2,3,4-tetrahydroisoquinoline alkaloid, (+)-reticuline.

Spectroscopic examination of the bark alkaloids of *C. foveolata* (also obtained in 0·07% yield) indicated the presence of mainly one alkaloid, reticuline, and chromatographic separation afforded (+)-reticuline in high yield.

Experimental

The crude alkaloids were isolated from dried leaves of *Litsea leefeana* (collected at Boonjie, voucher specimen number SN 7039), and from bark of *Cryptocarya foveolata* (collected at Acacia Plateau, voucher specimen number SN 6376), by the previously described method.[1] The yield of alkaloids from both plants was 0·07%, although very strongly positive field-tests for alkaloids were obtained with *C. foveolata* bark and *L. leefeana* leaves gave only relatively poor indications of alkaloids. Each of the alkaloids isolated was characterized by a mixed m.p. determination with an appropriate reference specimen, and by comparison of the i.r. and n.m.r. spectra, and $[\alpha]_D$, with those of the reference sample.

(i) Crude alkaloids (200 mg) from *L. leefeana* were chromatographed on neutral alumina and three main fractions were selected by t.l.c. examination. The first fraction, eluted by benzene–chloroform mixtures, consisted essentially of boldine, and crystallization from acetone gave boldine, m.p. 162–163°, identical with that isolated from *Neolitsea pubescens*.[2]

The next fraction (45 mg), eluted by chloroform, had an n.m.r. spectrum closely similar to that of reticuline, and (+)-reticuline perchlorate, m.p. 204–206°, was prepared from it by a previously described method.[3]

The third fraction (35 mg) was shown by t.l.c. and its n.m.r. spectrum to consist essentially of laurolitsine, and this conclusion was confirmed by conversion into (+)-*N*-acetyllaurolitsine, m.p. 255–260°, identical with that isolated from *Neolitsea pubescens*.[2]

(ii) Examination of the crude alkaloids of *C. foveolata* by t.l.c. and n.m.r. spectroscopy indicated that the crude alkaloids consisted largely of reticuline. Crude alkaloids (200 mg) were

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[1] Johns, S. R., Lamberton, J. A., and Sioumis, A. A., *Aust. J. Chem.*, 1966, **19**, 2331.

[2] Johns, S. R., Lamberton, J. A., and Sioumis, A. A., *Aust. J. Chem.*, 1969, **22**, 1311.

[3] Gopinath, K. W., Govindachari, T. R., Pai, B. R., and Viswanathan, N., *Chem. Ber.*, 1959, **92**, 776.

chromatographed on a very small column of neutral alumina to remove dark-coloured tarry impurities, and the main fractions (150 mg) eluted by chloroform were converted into (+)-reticuline perchlorate, m.p. 204–206°.

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