

ALKALOIDS OF THE AUSTRALIAN LEGUMINOSAE*

VI.† ALKALOIDS OF *PETALOSTYLIS LABICHEOIDES* VAR. *CASSEOIDES* BENTH.

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Badger and Beecham¹ reported the identification of tetrahydroharman as an alkaloid of *Petalostylis labicheoides*, a shrub of the family Leguminosae, but they did not identify other bases. We have now examined the alkaloids obtained in 0.4–0.5% yield from a sample of *Petalostylis labicheoides* var. *casseeoides* Benth. collected near Alice Springs in central Australia, and we find that tryptamine is by far the major component. Three other bases are present in our sample in addition to tryptamine, but in trace amounts only, and of these one is considered on the basis of an examination by thin-layer chromatography and gas chromatography to be N_bN_b -dimethyltryptamine, while another from similar comparison appears to be tetrahydroharman. N_b -Methyltryptamine could not be detected.

A satisfactory comparison of our results with the earlier work of Badger and Beecham¹ cannot be made because these authors did not specify a yield of either tetrahydroharman or of total bases. Our results suggest however that there may be considerable differences in alkaloid composition between the varieties of *P. labicheoides*. Tryptamine has been found in a number of leguminous species including *Acacia* species.²

Experimental

Leaves and stems of *Petalostylis labicheoides* var. *casseeoides* were collected near Alice Springs in October 1965 by Mr G. Chippendale. The ethanol extract of a sample (250 g) of milled dry leaves and stems yielded 1.3 g of total crude alkaloids. The crude bases, which were crystalline, were compared in thin-layer chromatograms with tryptamine, N_b -methyltryptamine, N_bN_b -dimethyltryptamine, and tetrahydroharman on alumina plates which were developed in chloroform/methanol (9 : 1). The major spot staining with iodine from the alkaloid mixture coincided with that due to tryptamine (R_F 0.14) and there were three faint spots at R_F 0.55, 0.68, and 0.76. Two spots coincided with those due to dimethyltryptamine (R_F 0.76) and tetrahydroharman (R_F 0.55).

Chromatography on a column of weak neutral alumina gave only trace amounts of material eluted by benzene and benzene/chloroform mixtures, and gas chromatography comparison on a glass column (6 ft by 4 mm internal diameter) packed with 2% S.E.30 on a "Gas Chromatography Support" (80–100 mesh), from Applied Science Laboratories, Inc., showed that the components of these fractions coincided in retention times with N_bN_b -dimethyltryptamine and tetrahydroharman respectively. The fractions (85–90% of the total bases) eluted by chloroform consisted of colourless crystals which were identified as tryptamine (m.p. and mixed m.p., 115–117°). The infrared and n.m.r. spectra of the alkaloid were identical with those of tryptamine.

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¹ Badger, G. M., and Beecham, A. F., *Nature*, 1951, 168, 517.

² Boit, H.-G., "Ergebnisse der Alkaloid-Chemie bis 1960." p. 477. (Akademie-Verlag: Berlin 1961.)