

# ALKALOIDS OF THE AUSTRALIAN LEGUMINOSAE\*

## II. THE OCCURRENCE OF SPARTEINE IN TEMPLETONIA EGENA†

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*Templetonia egena* Benth. is a legume of the subfamily Papilionatae and the tribe Genisteae. The genus is an Australian one and this species is a leafless form sometimes known as the Round Templetonia. The only recorded alkaloid in the genus is cytisine, found in *T. retusa* by White.<sup>2</sup> It has now been shown that the major alkaloid of *T. egena* is (–)-sparteine, the identity being confirmed by its infrared spectrum and its picrate.

### Experimental

Microanalyses were made by the CSIRO and University of Melbourne Microanalytical Laboratory.

A sample of *T. egena*, collected in the Swan Hill district of northern Victoria, was milled and extracted by percolation with methanol at 40°. After concentration and dilution with water, the extract was basified with ammonia and extracted with chloroform. The base was removed from the chloroform layer with dilute sulphuric acid and taken back into fresh chloroform after basifying the acid solution. Evaporation of the solvent left crude base in 1% yield.

On paper chromatography in butanol–acetic acid the crude alkaloid showed  $R_F$  values of 0.1, 0.25, and 0.4; the last was the most intense spot and was the value shown by an authentic sample of sparteine. Gas chromatography showed only one peak from a run on Silicone E-301 at 200°, the time corresponding to that taken to elute sparteine.

Steam distillation of the crude alkaloid gave the major constituent as an oil,  $[\alpha]_D^{20} -17.3^\circ$  (c, 0.64 in ethanol), the infrared spectrum of which (thin film) was identical with that of (±)-sparteine. The picrate, crystallized from ethanol, had m.p. 207.5–208°. A mixture with sparteine dipicrate (m.p. 208° lit.) had m.p. 207–208° (Found: C, 46.7; H, 4.7; N, 15.8%. Calc. for  $C_{15}H_{26}N_2(C_6H_3N_3O_7)_2$ : C, 46.8; H, 4.7; N, 16.2%).

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<sup>1</sup> Fitzgerald, J. S., *Aust. J. Chem.*, 1963, **16**, 246.

<sup>2</sup> White, E. P., *N.Z. J. Sci. Tech. B*, 1951, **33**, 55.