

saturation) and chromatography on DE 23 Cellulose, was received from Professor D. O. Hall (King's College, London). It was further purified by gel filtration and rechromatographed on DEAE cellulose. The purified protein *E550 red/E250 red* = 1:1, *E410 oxid/E280 red* = 5:2 was then sequentially degraded on a Beckman 890C sequenator [4]. The identity of the variant residues was also verified by manual Dansyl-Edman analysis [5].

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MAJOR ALKALOIDS OF *LEBECKIA PLUKENETIANA**

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Key Word Index—*Lebeckia plukenetiana*; Leguminosae; lupin alkaloids; sparteine; lupanine; nuttalline.

Plant. *Lebeckia plukenetiana* E. and Z. (Voucher specimen no. van Breda 796 deposited in the Botanical Research Institute, Pretoria). *Source.* Western Cape, South Africa. *Plant parts examined.* Leaves and twigs.

Extraction. Dry, powdered plant material was continuously extracted with hot MeOH and the residue obtained after evaporation was dissolved in 2M HCl. After filtration, the filtrate was basified with NH_4OH and extracted with CHCl_3 to give a brown gum. TLC—silica gel; cyclohexane Et_2NH (4:1)—showed the presence of five bases with R_f values 0.89, 0.53, 0.39, 0.25, 0.18.

Separation. Column chromatography—alumina; Et_2O —MeOH (99:1)—gave pure samples of the three bases with higher R_f values: attempts to identify the minor bases (R_f 0.25, 0.18) by comparison with known lupin alkaloids using GLC and filter-disc chromatography were inconclusive. *Sparteine* (R_f 0.89) was identified by comparison of IR and MS with an authentic specimen. *Mercurichloride* identified by mp and mmp. *Lupanine* (R_f 0.53) was identified by comparison of IR and MS with those of an authentic specimen. *Methiodide* identified by mp, mmp, and IR.

Nuttalline (R_f 0.39). Detailed analysis of the MS, used in conjunction with the data of Spiteller *et al.*, [1] confirmed the structure as a 4-hydroxylupanine. The IR and MS were identical with those obtained by Goldberg and Balthis [2] for nuttalline. However, the mp ($64-65^\circ$) does not agree with that reported (108°) [2]. Many members of the plant family Leguminosae have been investigated and found to contain various lupin alkaloids, but to our knowledge this is the first reported investigation of a member of the genus *Lebeckia*. Furthermore the alkaloid nuttalline is not of common occurrence having been only once before reported (from *Lupinus nuttallii*).

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*Details may be found in the Ph.D. Thesis of M. J. Natrass, University of the Witwatersrand, Johannesburg.