ALKALOIDS OF *PACHYGONE PUBESCENS* (MENISPERMACEAE)

By N. K. HART,* S. R. JOHNS,* J. A. LAMBERTON,* and H. SUARES*

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*Pachygone pubescens* Benth., a woody climber belonging to the family Menispermaceae, was collected at Bamaga in northern Queensland. The crude alkaloids isolated by extraction of roots and tops were obtained as a dark black to purple-coloured, largely intractable mixture, most of which was sparingly soluble in chloroform. Chromatography of the benzene-soluble portion on neutral alumina gave the bisbenzylisoquinoline alkaloid isotrilobine, which had previously been obtained from *Cocculus trilobus* D.C.1 and *Cocculus sarmentosus* D.C.2 (family Menispermaceae). From the chloroform-insoluble portion the chlorine-containing alkaloids acutumine and acutumidine were obtained. These alkaloids were previously isolated from *Sinomenium acutum* Rehd. & Wills and *Menispernum dauricum* D.C.,3 and a biosynthetic scheme for their derivation from hasubanonine has been suggested.4

Experimental

The crude alkaloids were separated in approximately 0.3% yield from combined roots and tops of *P. pubescens* (herbarium voucher specimen SN 7816) by the method previously described.5 The crude alkaloids (12·0 g) were extracted in turn with hot benzene and chloroform and the insoluble residue (5·0 g) was removed by filtration. The benzene-soluble portion was added to a column of alumina (Spence Type H, neutralized with ethyl acetate) and the fractions eluted by benzene-ethyl acetate (9 : 1) consisted largely of one compound. After repeated crystallization from acetone, isotrilobine (570 mg) was obtained as colourless needles, m.p. 217-218°, [α]D +325° (c, 0·41 in CHCl3) (lit. m.p. 215°, [α]D +134° in CHCl3). The n.m.r. spectrum (CDCl3 solution) confirmed the presence of two methoxyl groups (δ 3.78, 3.93) and two N-methyl groups (δ 2.50, 2.31), and the i.r. and mass spectra corresponded with those reported in the literature.6,7

When the crude alkaloids were extracted with hot benzene and chloroform, and the extracts were allowed to stand, a brown powdery material (500 mg) gradually separated out. This material was separated by filtration; it was re-dissolved in chloroform–methanol and the solution

* Division of Applied Chemistry, CSIRO, P.O. Box 4331, Melbourne, Vic. 3001.

decolorized with charcoal. Repeated crystallization from chloroform–methanol and from acetone–methanol gave colourless crystals. This product was a mixture, and comparison of its n.m.r. and mass spectra with those of acutumine and acutumidine\(^3\) indicated that it was an approximately 1:1 mixture of these two compounds. These alkaloids are difficult to separate, and fractional crystallization from acetonitrile as recommended by Tomita \textit{et al.}\(^3\) eventually gave pure acutumidine, m.p. 238–240 (dec.), \([\alpha]_D^{\text{D}} -185^\circ\) (c, 0.1 in pyridine), and acutumine, m.p. 239–241\(^\circ\), \([\alpha]_D^{\text{D}} -175^\circ\) (c, 0.7 in pyridine), contaminated with only a trace of acutumidine.

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\textit{SHORT COMMUNICATIONS}