INDOLE ALKYLAMINES FROM *TACHIGALIA PANICULATA*

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In the course of an alkaloidal screen of legume extracts, small quantities of two indole alkylamines were detected in inflorescences of *Tachigalia paniculata* Aubl. (Leguminosae, subfamily Caesalpinioideae). Although this arboreal species, indigenous to parts of Peru and Brazil, does not appear to have been subjected to any prior phytochemical studies, the leaves of another member of the genus, *T. myrmecophila*, contain skatole (3-methyl indole) (1) and tannins (2).

In the present work an 80% extract of *Tachigalia paniculata* inflorescences was extracted for alkaloids, and the presence of *N*-methyltryptamine and tryptamine was indicated by tlc and confirmed by combined gc-ms. The concentration of each base in the extract was determined by hplc. *N*-Methyltryptamine has not previously been isolated from any plant in the Caesalpinioideae. To date, tryptamine has been shown to occur in three species in this subfamily, namely, *Petalostylis labicheodes* var. *casseoides* (3), *Dicorynia guianensis* (4) and *Burkea africana* (5).

EXPERIMENTAL[1]

PLANT MATERIAL.—An 80% ethanolic extract of the inflorescences of *Tachigalia paniculata*, collected in Peru, was supplied by the Developmental Therapeutics Program (Natural Products Branch) of the National Cancer Institute, formerly the Cancer Chemotherapy National Service Center, Bethesda, Maryland. A specimen representing this collection is deposited in the Herbarium of the National Arboretum, Agricultural Research Service, U.S. Department of Agriculture, Washington, D.C.

FRACTIONATION AND IDENTIFICATION OF INDOLE ALKYLAMINES.—A portion of the plant extract (2 g) was extracted according to the method of Farnsworth and Euler (6). The resultant crude basic fraction (3 mg) was chromatographed by tlc in three solvent systems (methanol-ammonium hydroxide solution, 131:2; benzene-chloroform-diethylamine 5:4:1; chloroform-methanol-ammonium hydroxide solution, 80:20:1). *N*-Methyltryptamine and tryptamine had identical R_f values with authentic compounds[2] and exhibited a brilliant yellow color in long-wave uv light when visualized with 1% ceric ammonium sulfate in 85% phosphoric acid (110°, 10 min).

A chloroform solution (1% w/v) of the crude basic fraction was analyzed by gc-ms, using 5% SE–30 on Chromosorb W as gc stationary phase, temperature programmed at 4° min^{-1} from 150°, with the flow rate of He 22 ml min^{-1}. The mass spectrum of tryptamine (R_t 5.4 min) was closely comparable to that obtained previously using this technique (7). Although the molecular ion of *N*-methyltryptamine (R_t 4.7 min) was not observed, its mass spectrum was otherwise similar to data from a previous study (7).

QUANTIFICATION OF INDOLE ALKYLAMINES.—A further 2 g portion of the plant extract was accurately weighed and subjected to hplc on a Waters Assoc. 30×5 mm i.d. μBondapak C_{18} column with 1,4-dioxane-0.1 M ammonium carbonate (4:5) as solvent, as previously described by our group (8). The levels of tryptamine and *N*-methyltryptamine in the extract were 0.009% w/w and 0.005% w/w respectively.

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[1]All tlc was carried out on pre-coated silica gel GF–254 plates (E. Merck, Darmstadt, Germany). Combined gc-ms was performed on a Varian-MAT 112S mass spectrometer, equipped with a Varian-MAT 166 Data System, linked to a Varian 1400 model gas chromatograph, using a 6′ glass column. Hplc separations were obtained on a Waters Assoc. model 6000 liquid chromatograph, equipped with a Beckman 25 variable wavelength uv spectrophotometer and recorder.

[2]Reference samples of *N*-methyltryptamine and tryptamine were obtained from Sigma Chemical Company, St. Louis, MO.

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