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ROOT BARK ALKALOIDS OF *RAUWOLFIA OBSCURA*

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Key Word Index—*Rauwolfia obscura*; Apocynaceae; indole alkaloids; ajmaline; alstonine; deserpidine; methoxy-ajmaline; methyl deserpidate; rescinnamine; reserpine; vomalidine; α -yohimbine.

Plant. Rauwolfia obscura K. Schum. *Plant part.* Root bark.

Source. Kinshasa, Zaire (voucher No. RAU 108-701, deposited with the Collection of Materia Medica and Herbaria, University of Bradford).

Previous work: Isolation of alstonine,¹ reserpine,² ajmaline, obscurine, obscuridine and tetraphyllicine;³ chromatographic evidence of rescinnamine.⁴

Present work: Ten alkaloids were detected; six were isolated and identified and three were identified by co-TLC.

EXPERIMENTAL

Powdered root bark was extracted by maceration using ammoniated MeOH. The filtered extract, after evaporation to dryness under reduced pressure, was dissolved in 1.0 N HCl and fractionated as described earlier.⁵

Weak base fraction. Using PLC two alkaloids were isolated, *deserpidine* (m.p., m.m.p., UV, IR, MS, co-TLC) and *vomalidine* (m.p., UV, IR, MS agree with published data^{6,7}). The presence of reserpine and rescinnamine in trace amounts was confirmed by co-chromatography (6 systems).⁸

Strong base fraction. Using column chromatography and PLC four compounds were isolated: α -yohimbine (m.p., m.m.p., UV, IR, MS, co-TLC), *methyl deserpidate* (UV, IR, MS, indicating E-ring methoxy-yohimbine chromatographically identical with the methanolysis product of deserpidine), *ajmaline* (m.p., m.m.p., UV, IR, MS, co-TLC) and *methoxyajmaline*, amorphous yellow powder, blue-violet fluorescence in screened UV light (365 nm wavelength), violet colour with FeCl₃/HClO₄ reagent, UV: λ_{\max} 219, 251, 289, λ_{\min} 229, 274 nm. IR: ν_{\max}^{KBr} 3450, 2750, 1620, 1595 cm⁻¹. MS: m/e 356 (M⁺), 341, 327, 230, 213, 212, 200, 199, 198, 182, 174, 173, 131, 130 [agrees with ajmaline except that peaks associated with the aromatic portion are +30 m/e ; m/e 230 \rightarrow m/e 212 indicates that C-H configuration at C-2 is β as in ajmaline].⁷ Co-TLC revealed the presence of a further strong base corresponding to alstonine. The principal alkaloids of the root bark are vomalidine and α -yohimbine.

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REFERENCES

- ¹ SCHLITTLER, E., SCHWARTZ, H. and BADER, F. (1952) *Helv. Chim. Acta* **35**, 271.
- ² MCALEER, W. J., WESTON, R. G. and HOWE, E. E. (1956) *Chem. Ind. (London)* 1387.
- ³ ROLAND, M. (1959) *J. Pharm. Belg.* **14**, 347.
- ⁴ KORZUN, B. P., ST. ANDRÉ, A. F. and ULSHAER, P. R. (1957) *J. Am. Pharm. Ass. Sci. Ed.* **46**, 720.
- ⁵ COURT, W. E., EVANS, W. C. and TREASE, G. E. (1958) *J. Pharm. Pharmac.* **10**, 380.
- ⁶ NEUSS, N. (1960 *et seq.*) Physical data of indole and dihydroindole alkaloids (Eli Lilly and Co. Ltd., Indianapolis, U.S.A.)
- ⁷ BIEMANN, K., BOMMER, P., BURLINGAME, A. L. and McMURRAY, W. J. (1964) *J. Am. Chem. Soc.* **86**, 4624.
- ⁸ COURT, W. E. and HABIB, M. S. (1973) *J. Chromatog.* **80**, 101.