

1,2-DIMETHYLQUINOL-4-ONE AND XANTHEVODINE,
MINOR ALKALOIDS FROM THE LEAVES OF
ACRONYCHIA BAUERI SCHOTT.*

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In an earlier account¹ of the isolation of alkaloids from the leaves of *Acronychia baueri* Schott. the identification was reported of a number of 10-methylacridones (melicopicine, melicopidine, melicopine, and 2,4-dimethoxy-10-methylacridone) and furoquinolines (skimmianine, kokusaginine, acronycidine, and acronidine). A minor base, $C_{11}H_{11}NO$, m.p. 178–179°, isolated as a picrate, m.p. 234–238°, in the course of this earlier investigation¹ has now been identified as 1,2-dimethylquinol-4-one, which has previously been reported to occur as an alkaloid in another rutaceous species, *Platydesma campanulata* Mann.² A second minor base, $C_{16}H_{13}NO_5$, has been identified as xanthevodine (2,3-methylenedioxy-1,4-dimethoxyacridone) which was previously isolated as an alkaloid of *Evodia xanthoxyloides* F. Muell.^{3,4}

Experimental

From the residues remaining after the separation of the furoquinoline alkaloids previously described,¹ a minor base was isolated by precipitation as a picrate from the strongly basic fractions extracted most readily from benzene solution by dilute hydrochloric acid. After purification by crystallization from ethanol the picrate melted at 234–238°, and afforded a crystalline base which was further purified by chromatography on neutral alumina. Elution with benzene/1% chloroform mixture gave 1,2-dimethylquinol-4-one as colourless needles, m.p. 178–179°. For 1,2-dimethylquinol-4-one and its picrate Werny and Scheuer reported² m.p. 178–179° and 234–236° (dec. 237°), respectively. The molecular formula $C_{11}H_{11}NO$ was determined from the mass spectrum which showed a strong molecular ion peak at m/e 173. The molecular ion peak was also the base peak of the spectrum which showed only two other strong peaks at m/e 144 (43% of base peak) and 145 ($M^+ - CO$; 50% base peak), and relatively minor peaks at m/e 130 (6%) and m/e 77 (15%). Spectroscopic properties were in agreement with those recorded,² and signals in the n.m.r. spectrum were assigned as follows: three-proton singlet at δ 2.37 ($C-CH_3$); three-proton singlet at δ 3.63 ($N-CH_3$); one-proton singlet at δ 6.10 (H 3); three-proton multiplet at 425–470 c/s (H 6, H 7, H 8), and one-proton multiplet at 497–507 c/s (H 5).

From crude residues of acridone alkaloids¹ the fraction most easily extracted from benzene solutions into dilute hydrochloric acid afforded on crystallization from ethanol yellow prisms, m.p. 213–215°, which were identified as xanthevodine by comparison with an authentic specimen (Found: OCH_3 , 20.8. Calc. for $C_{16}H_{13}NO_5$: OCH_3 , 20.7% for two methoxyl groups). The molecular weight was confirmed by the mass spectrum (molecular ion peak m/e 299), and the n.m.r. spectrum showed that the alkaloid had no *N*-methyl group, as there were only two sharp

* Manuscript received July 7, 1966.

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¹ Lambertson, J. A., and Price, J. R., *Aust. J. Chem.*, 1953, 6, 66.

² Werny, F., and Scheuer, P. J., *Tetrahedron*, 1963, 19, 1293.

³ Hughes, G. K., and Neill, K. G., *Aust. J. scient. Res. A*, 1949, 2, 429.

⁴ Hughes, G. K., Neill, K. G., and Ritchie, E., *Aust. J. scient. Res. A*, 1952, 5, 401.

three-proton signals at δ 4.02 and δ 4.10 which must be assigned to the two methoxyl groups. A picrate prepared from the alkaloid melted at 194–196°, compared with the published⁴ melting point of 145–146° for xanthevodine picrate, but the same m.p. (194–196°) was obtained when the picrate was prepared from an authentic specimen of xanthevodine supplied by Dr E. Ritchie. There was no depression of melting point when the two samples of picrate were mixed.