THE ISOLATION OF O-METHYLAKUAMMINE AND OF EPOXYCOPSININE FROM Vinca erecta

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Continuing a separation of the nonphenolic fraction of the combined alkaloids [1] on a column of alumina, from the benzene eluate we isolated two individual alkaloids.

The first base, $C_{23}H_{28}N_2O_4$ (mol. wt. 396, mass spectrometrically) had mp 241-242°C (methanol). Its UV spectrum [λ_{max} (C_2H_5OH) 245, 310 nm (log ε 3.76, 3.18)] was similar to that of akuammine. The IR spectrum exhibited absorption bands at 725 and 820 cm^{-1} (1,2,4-trisubstituted benzene ring) and 1730 cm^{-1} (ester carbonyl group). The NMR spectrum of the base (JNM-4H-100/100 MHz in $CDCl_3$, δ scale) showed the signals of the protons of the following groups: $=CH-CH_3$ (1.45 ppm, doublet; 4.87 ppm, quartet), $N-CH_3$ (2.70 ppm, singlet), $COOCH_3$ (3.68 ppm, singlet), $Ar-OCH_3$ (3.73 ppm, singlet), and also those of an aromatic ring (3 H, 6.40-6.67 ppm).

The facts presented above permit the assumption that the structure of the base is very similar to that of akuammine but differs from the latter by the presence of a methoxy group in place of a hydroxy group [2]. To confirm this, akuammine was methylated with diazomethane, leading to its O-methyl ether. A direct comparison of the base with O-methylakuammine established their identity.

The second base, $C_{21}H_{24}N_2O_3$, had mp 123-124°C (methanol), R_f 0.25 [TLC on SiO_2, petroleum ether–diethyl ether (1:1)]. Mol. wt. 352 (mass spectrometrically). UV spectrum: λ_{max} (C_2H_5OH) 248, 292 nm (log ε 3.83, 3.39). The IR spectrum of the base exhibited absorption bands at 760 cm^{-1} (disubstituted benzene ring), 1720 cm^{-1} (nonconjugated carbonyl group), and 3385 cm^{-1} (NH). The NMR spectrum had the signals of a $COOCH_3$ group (3.68 ppm, singlet) and of four aromatic protons (6.57-6.87 ppm).

The similarity of the IR, UV, and NMR spectra of the base and of copsinine, and also their isolation together, made it possible to assume that these two alkaloids have the same heterocyclic skeleton. However, in the mass spectrum of copsinine the peaks of the ions (m/e 109, 124, and 338–M^+) differ from the peaks of the ions of the new base (m/e 123, 138, 352–M^+) by 14 mass units. These properties of the new base agree with those of epoxycopsinine [3].

LITERATURE CITED

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