N-METHYLLAUROTETANINE AND ISOCORYPALMINE FROM Liriodendron tulipifera

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Continuing the separation of the phenolic fraction of the combined ether-soluble alkaloids of the leaves of Liriodendron tulipiferum L., Family Magnoliaceae [1], in addition to the lirinine, N-methylcrotsparine, and predicentrine isolated previously, we have obtained two more bases. Base (I), with the composition $C_{20}H_{23}NO_4$, $[\alpha]_D$ +76° (c 0.2; chloroform), formed a crystalline hydrobromide with mp 237-238°C. From its UV, PMR, and mass spectra and a comparison with an authentic sample, base (I) was identified as N-methyllaurotetanine [2, 3].

Base (II) had the composition $C_{20}H_{23}NO_4$, mp 220-222°C (methanol). UV spectrum: $\lambda_{max}^{ethanol}$ 285 nm (log ε 3.78).

The PMR spectrum of (II) taken in CF_3COOH (δ scale, ppm, 0 – HMDS) contained the signals of three methoxy groups (3.53 s, 6H, and 3.60, s, 3H) and four aromatic protons (6.42, s, 1H; 6.61, s, 1H, and 6.72, s, 2H). The mass spectrum of (II) had the peaks of ions with m/z 341 (M^+), 326, 324, 310, 178, 176, 164 (100%), and 149, which are characteristic for tetrahydroprotoberberine alkaloids. The presence in the mass spectrum of (II) of the maximum peaks of an ion with m/z 164 showed that there were two methoxy groups in ring D [4].

On the basis of the facts presented, compound (II) was a tetrahydroprotoberberine alkaloid – isocorypalmine or corypalmine. A direct comparison of (II) with isocorypalmine isolated from Glaucium fimbrilligerum Bois [5, 6] showed their identity.

This is the first time that alkaloids of the tetrahydroprotoberberine type have been isolated from plants of this genus.

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