STRUCTURE OF IOLANTININE

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UDC 547.944/945

By the adsorption chromatography of the fraction of phenolic bases of Merendera iolantae E. Czerniak, after the separation of colchameine [1], we have isolated a new alkaloid with the composition $C_{38}H_{44}O_5N_2$, mol. wt. 608 (mass spectroscopically), which we have called iolantinine (I). The IR spectrum of the base has the absorption bands of hydroxy groups (3450 cm^{-1}), an aromatic ring (1620, 890 cm^{-1}), and methylene groups (1460 cm^{-1}). The mass spectrum of (I) has the strong peak of an ion with m/e 192 corresponding to fragment A, which is characteristic for a number of 1-benzyl- and 1-phenylethylisoquinolines, and also for some bisbenzylisoquinoline bases [2-4]. The results of an investigation of PMR and ^{13}C NMR spectra have shown for (I) the carbon-nitrogen skeleton of bisphenylethyltetrahydroisoquinoline, which is confirmed by the fact that its molecular weight is an even number. The PMR spectrum of (I) contains the resonance signals of 12 aromatic protons (6.38-6.75 ppm), two O-methyl groups (3.74, 3.72 ppm), two N-methyl groups (2.33, 2.22 ppm), and the unresolved signals of 18 protons (4.0-1.0 ppm) which may be assigned to eight methylene and two methyl groups [5].

The characteristics of the ^{13}C spectrum of the base are given below:

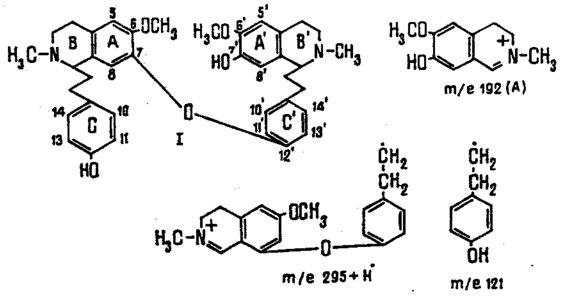
Type of carbon	Chemical shift, ppm
$=C\langle$	155,1; 149,2; 2×146,0; 144,6; 144,4; 134,1; 132,8; 130,0; 129,7; 128,7; 124,4
$=\overset{\mid}{C}H$	2×129,3; 124,4; 119,3; 118,3; 116,6; 3×115,7; 113,6; 112,6; 111,2
$\rangle N-\underset{\mid}{\overset{\mid}{C}}H$	62,7; 62,0
$-CH_3O$	56,1; 55,9
$\rangle N-\overset{\mid}{C}H_2$	47,8; 47,4
$\rangle N-CH_3$	42,1; 41,7
$-\underset{\mid}{C}H_2$	2×36,4; 31,3; 31,0; 25,4; 24,5

On the basis of the facts given and the positions of the hydroxy and methoxy groups in the aromatic ring of the isoquinoline alkaloids of colchicine-containing plants [6], three most probable structures with one ether bond between the aromatic rings may be proposed for iolantinine: (I) – AC' (C_7-C_{12}'), (II) – CC' ($C_{12}-C_{12}'$); and (III) – AA' (C_7-C_7').

Since the NMR spectrum of (I) shows that its molecule is unsymmetrical, structures (II) and (III) are excluded. Furthermore, they are incompatible with the biogenetic scheme for the isoquinoline bases [7, 8]. Structure (III) is also excluded by the presence of an ion with m/e 192 in the spectrum of (I).

In favor of structure (I) for this compound is the presence in the mass spectrum of the peak of an ion with m/e 296 formed as the result of the favorable cleavage of the molecule of the base in the β position with respect to the nitrogen and the aromatic ring with charge transfer [5, 9, 10]. The formation of ions with m/e 192 and 296 in the mass spectrum of the base can be represented by the following scheme:

V. I. Lenin Tashkent State University. Translated from Khimiya Prirodnykh Soedinenii, No. 3, pp. 422-423, May-June, 1977. Original article submitted December 13, 1976.



It must be noted that iolantinine is the first representative of the bisphenylethylisoquinoline alkaloids with one ether bond.

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ALKALOIDS OF *Papaver arenarium* AND *P. commutatum*

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UDC 547.944/945

By methanol extraction of the dried and comminuted plant *Papaver arenarium* M.B. collected in the flowering phase in July, 1974, in the region of Lake Sevan, we obtained the combined alkaloids with a yield of 0.13%. When the nonphenolic fraction of them was separated on a column of neutral alumine, benzene eluted a base identified as the alkaloid macrostomine [1] by IR, PMR, and mass spectra and $[\alpha]_D$ values, and also by a chromatographic comparison with authentic macrostomine (I).

The yield of (I) was 0.025%. This is the first time that (I) has been found in *P. arenarium.*

From *Papaver commutatum* Fisch. et Mey. collected in the flowering phase in July 1975 at a height of 2300 m in the Krasnosel'sk region of the Armenian SSR by the methanol method we obtained the combined alkaloids with a yield of 0.035%.

By precipitation in the form of hydrochlorides, from the phenolic fraction of the total material we isolated isocorydine (II) (0.01%), found previously in this plant [2], and from the nonphenolic fraction d-roemerine (III) [3] (0.012%). The bases were identified by mixed melting points with samples of (II) and (III), chromatographically, and by comparison of $[\alpha]_D$ values and IR, PMR, and mass spectra.

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