CORLEDINE — A NEW ALKALOID FROM *Corydalis ledebouriana*

I. A. Israilov, M. S. Yunusov,
N. D. Abdullaev, and S. Yu. Yunusov

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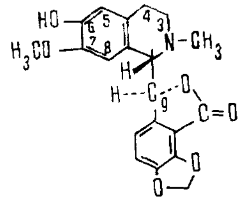
From the phenolic fraction of the combined alkaloids of the epigeal part of *Corydalis ledebouriana* K. et K. [1, 2] collected in the Fergana range in the basin of the R. Kugart in the flowering period we have isolated a new base with mp 210-212°C (methanol), $[\alpha]_D -100°$ (c 0.2; methanol), which we have called corledine (I). The base is sparingly soluble in acetone, benzene, ether, and chloroform, and readily soluble in alkaloids.

UV spectrum: $\lambda_{max}^{ethanol}$ 221, 290, 326 nm (log ε 4.35, 3.44, 3.51).

The IR spectrum of the base shows absorption bands at (cm^{-1}) 920, 1040 (methylenedioxy group), 1610 (aromatic ring), 1750 (carbonyl group), and 3350 (hydroxy group). The mass spectrum of corledine lacks the peak of the molecular ion, and the maximum ion is one with m/e 192. There are also ions with m/e 177, 149, and 135. The characteristics of its UV, IR, and mass spectra enable us to assign corledine to the phthalide-isoquinoline alkaloids [3, 4]. In harmony with this conclusion is also the PMR spectrum of (I) ($CDCl_3$, 0 — HMDS), which shows the following signals (ppm): singlets at 2.60 (3H, $N-CH_3$), 3.74 (3H, OCH_3), 5.98 (2H, $-OCH_2O-$), 6.35 and 6.63 (1H, 1H, p-aromatic protons); doublets at 4.02 (1H, ^3J = 3.8 Hz, C_1-H), 5.61 (1H, ^3J = 3.8 Hz, C_9-H), 6.80 and 7.14 (1H, 1H, ^3J = 8.0 Hz, o-aromatic protons). The protons of the methylenedioxy groups are represented by a multiplet at 2.22-3.04 ppm. The signal from the hydroxy group is strongly broadened and is found at 4.90 ppm. The acetylation of the base with acetic anhydride in pyridine gave an O-acetyl derivative with mp 162-164°C.

The presence of the maximum peak of an ion with m/e 192 shows the presence of hydroxy and methoxy groups in the isoquinoline part of the base. When compound (I) was methylated with diazomethane, O-methylcorledine (II) was obtained with mp 179-180°C, identical, according to UV, IR, PMR, and mass spectra, and also a mixed melting point, with *l*-adlumine [5]. In order to establish the mutual positions of the methoxy and hydroxy groups, we used the results of measurements of the intramolecular nuclear Overhauser effect (NOE). The PMR spectra were taken and the NOEs were measured on a JNM-4H-100/100 MHz instrument. When the protons of the methoxy group were irradiated with a strong radiofrequency field, the intensity of the signal of one of the p-aromatic protons, namely the singlet at 6.63 ppm, increased by 26%. Furthermore, the intensity of the same signal rose by 27% when the C_1-H proton was irradiated. Consequently, the singlet at 6.63 ppm was unambiguously assigned to the C_8-H proton, and the methoxy and hydroxy groups are present at C_7 and C_6, respectively.

On the basis of the facts obtained, corledine has the following structure:



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