THE STRUCTURE OF CORGOINE

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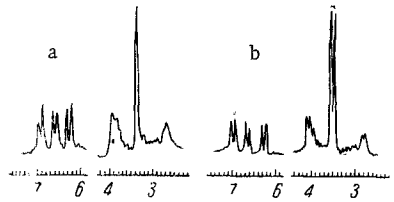
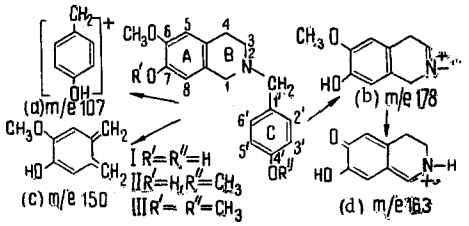


Fig. 1. NMR spectra of corgoine (a) and sendaverine (b) (trifluoroacetic acid).

Continuing the separation of the total alkaloids of Corydalis gortschakovii [1] collected in the budding and flowering phase in the Pamir-Alai, we have isolated a new phenolic base which we have called corgoine (I), $C_{17}H_{19}O_3N$, mp 190-191°C(methanol), mol. wt. 285 (mass spectrometrically). The alkaloid is sparingly soluble in organic solvents and forms a hydrochloride with mp 269°C (decomp., from ethanol). UV spectrum: λ_{max} 226, 284 nm (log ε 4.36, 3.91). Its IR spectrum has absorption bands at (cm^{-1}): 3400, 3500 (OH), 1520, 1610 (aromatic ring). The mass and NMR spectra of corgoine are similar to those of sendaverine (II) [2, 3]. The composition of sendaverine differs from that of corgoine by a methylene group which is apparently due to the replacement of a methoxyl in II by a hydroxyl in I. In actual fact, the NMR spectrum of corgoine shows the signal of only one methoxy group, at 3.48 ppm.



The mass spectrum of corgoine differs from that of sendaverine by the m/e value of the molecular ion and of fragment *a* (see scheme). Consequently, in corgoine there is a methoxy group in ring C in place of a hydroxy group.

The NMR spectrum of corgoine (Fig. 1) shows that the substituents in it are arranged as in sendaverine in positions 6, 7, and 4'. This is confirmed by the fact that the methylation of I with diazomethane gave a dimethyl ether (III) with mp 98-99°C (methanol) identical with the methyl ether of sendaverine [3].

In the NMR spectrum, the positions of the signals of the aromatic protons of ring C in corgoine are displaced somewhat relative to the corresponding signals in sendaverine. However, the signals of the π-aromatic protons of ring A coincide completely with those for sendaverine. This shows that the mutual arrangement of the methoxy and hydroxy groups of ring A is the same in corgoine as in sendaverine.

On the basis of these facts, we propose structural formula I for corgoine.

LITERATURE CITED

1. M. S. Yunusov, S. T. Akramov, and S. Yu. Yunusov, Dokl. Akad. Nauk SSSR, 162, 607 (1965).
2. T. Kametani and K. Ohkubo, Tetrah. Let., 48, 4317 (1965).
3. M. U. Ibragimova, M. S. Yunusov, and S. Yu. Yunusov, KhPS [Chemistry of Natural Compounds], 438 (1970).

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