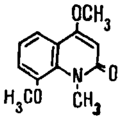
FOLIMINE – A NEW ALKALOID FROM Haplophyllum foliosum

D. M. Razzakova, I. A. Bessonova,
and S. Yu. Yunusov

UDC 547.944/45

Continuing a study of the alkaloids of the epigeal part of H. foliosum Vved. [1], we have separated the combined chloroformic alkaloids into phenolic and nonphenolic fractions. By treatment with acetone, the water-soluble nonphenolic mixture (22 g) yielded foliosidine (18 g). The remainder were chromatographed on alumina. The ethereal eluates yielded skimmianine, N-methyl-2-phenyl-4-quinolone, and foliosine, and base with mp 139-140°C (benzene–petroleum ether), readily soluble in the usual organic solvents and optically inactive. The base formed salts: hydrochloride with mp 171-172°C and picrate with mp 193-194°C. The alkaloid is new, and we have called it folimine.

The UV and IR spectra of folimine are typical for 2-quinolone derivatives: high-intensity absorption band at 1649 cm^{-1} [2] and three maxima in the 260-290 nm region. Furthermore, the IR spectrum of the substance does not change when it is acidified or made alkaline [3]. The mass spectrum of folimine has the peaks of ions with m/e 219 M^+, 100%, 204 (M–15, 93%), 189 (M–30, 41%), and 174 (M–45, 54%). The peaks of the other fragments have low intensities. Such decomposition is characteristic for methoxy derivatives of 2-quinolones [4]. In the NMR spectrum of the substance, the region of aromatic protons resembles the corresponding region of the spectrum of foliosidine: one-proton signal at τ 2.55 (H-5), two-proton signal at 3.03 ($H_{6,7}$), and a one-proton singlet at 4.06 (H_3) [5]. However, in contrast to foliosidine, in the spectrum of folimine there is only one signal in the strong-field region, at 6.20 with an intensity of nine protons units (methoxy and methylimide groups). These facts permit the structure of 4,8-dimethoxy-N-methyl-2-quinolone to be proposed for folimine [6].



For a definitive proof of the proposed structure, we methylated the alkaloid folifidine isolated previously from the same plant [7]. The results of a direct comparison of O-methylfolifidine and folimine showed that the substances were identical.

LITERATURE CITED

1. I. A. Bessonova and S. Yu. Yunusov, Khim. Prirodn. Soedin., 7, 629 (1971).
2. N. I. McCorkindale, Tetrahedron, 14, 223 (1961).
3. A. W. Sangster and K. L. Stuart, Chem. Rev., 65, 102 (1965).
4. D. M. Clugston and D. B. MacLean, Can. J. Chem., 44, 781 (1966).
5. M. R. Yagudaev and S. Yu. Yunusov, Khim. Prirodn. Soedin., 4, 201 (1968).
6. V. I. Pastukhova, G. P. Sidyakin, and S. Yu. Yunusov, Khim. Prirodn. Soedin., 1, 27 (1965).
7. Z. Sh. Faizutdinova, I. A. Bessonova, and S. Yu. Yunusov, Khim. Prirodn. Soedin., 3, 257 (1967).

Institute of the Chemistry of Plant Substances, Academy of Sciences of the Uzbek SSR. Translated from Khimiya Prirodnykh Soedinenii, No. 1, p. 133, January-February, 1972. Original article submitted October 26, 1971.