HAPLOFIDINE – A NEW ALKALOID FROM *Haplophyllum perforatum*

Kh. A. Abdullaeva, I. A. Bessonova, and S. Yu. Yunusov

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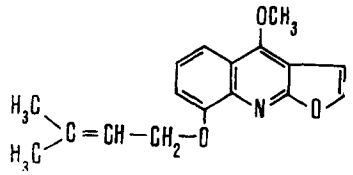
We have investigated the epigeal part of the plant H. perforatum collected by S. Khamidkhodzhaev in the fruit-bearing period on August 25, 1973, in the gorge of the R. Karaguz (northern slopes of the Babatag range), Gissar region. From the region of bases obtained by methanolic extraction of the plant, chromatography on alumina yielded a new, optically inactive, alkaloid (I) with mp 111-112°C (ether), composition $C_{17}H_{17}NO_3$, mol. wt. 283 (mass spectrometry), which we have called haplofidine. The base is readily soluble in acetone and chloroform, less readily in ether and acid, and insoluble in water and alkali.

The IR spectrum of haplofidine shows maxima at 3140 and 3160 cm^{-1} (furan ring); absorption bands of hydroxy groups are absent. The UV spectrum [λ_{max} 245, 261 inflection, 272 inflection, 300 inflection, 314, 329, 342 nm (log ε 4.82, 3.96, 3.72, 3.75, 3.84, 3.80, 3.75)] is close to that of robustine [1].

In the mass spectrum of (I) there are peaks of ions with m/e 283 (M^+, 6%), 215 (M – 63, 100%), 200 (23%), 186 (7%), 172 (7%), 156 (5%), 69 (5%). All the peaks with the exception of M^+ and that of the ion with m/e 69 are observed in the spectrum of robustine [2]. The NMR spectrum of haplofidine (taken in $CDCl_3$) contains the signals of 17 hydrogen atoms with the following values of τ (ppm): 2.47 and 3.05 (doublet, 1H each, J = 3Hz, α- and a β-protons of a furan ring); signals at 2.28 (quartet, 1H, J_{ortho} = 8 Hz, J_{meta} = 1.5 Hz), 2.77 (triplet, 1H, J_{ortho} = 8 Hz), 3.02 (quartet, 1H, J_{ortho} = 8 Hz, J_{meta} = 1.5 Hz) give the typical pattern of three adjacent aromatic protons with close values of the chemical shifts and spin–spin coupling constants to those for γ-fagarine and robustine [3, 4]. The presence in the NMR spectrum of a three-proton singlet at 5.68 ppm is characteristic for a methoxy group in position 4 [2] and also the presence of a one-proton triplet at 4.42 ppm (J = 6.5 Hz, =CH–CH_2–), of a two-proton doublet at 5.25 ppm (J = 6.5 Hz, =CH–CH_2–O–), and of a six-proton singlet at 1.28 ppm [=$C(CH_3)_2$] permits the assumption that haplofidine has the structure of 8-isopentenyloxydictamnine:



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