ALKALOIDS OF THALICTRUM MINUS

V. G. Khodzhaev and Kh. Allayarov

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We have investigated the alkaloids from the epigeal part of the plant collected in the Kara-Kala region (Chendyr Gorge, Turkmen SSR) on June 11, 1960 in the vegetation and incipient fruit-bearing period. Chloroform extraction gave 0.48 g of ethereal and 0.23% of chloroform fractions of the combined alkaloids.

The ethereal fraction of the alkaloid mixture was chromatographed on a column of alumina and was eluted with chloroform. The eluate was evaporated and the residue was dissolved in methanol. When the solvent was allowed to evaporate gradually, prismatic crystals with mp 265–268° C deposited. On a nonfixed layer of alumina, the the alkaloid showed a single spot.

The UV spectrum of the alkaloid has two absorption maxima: at 283 and 315 mμ (log ε 3.73 and 3.41), which are characteristic for 1-benzyl-3, 4-dihydroisoquinoline bases [1]. The IR spectrum of the substance shows absorption bands in the 3500–3350 cm^{-1} region (hydroxyl group) and a triplet at 1630, 1605, and 1570 cm^{-1} (conjugated —C=N— bond).

The NMR spectrum of the alkaloid (JNM-100/100 MHz, τ scale) shows signals of protons at 8.13 ppm (3H, N-methyl group) and 6.40, 6.23, and 6.13 ppm (9H, three methoxyl groups).

The above-described properties of the alkaloid coincide with those of thalmethine isolated from a Bulgarian variety of Th. minus [2, 3]. A comparison of the IR spectrum of the base with that of thalmethine (the latter was kindly given to us by N. M. Mollov, Bulgaria) shows that they are identical. The fragmentation of the alkaloid thalmethine is similar to the decomposition of thalsimine and thalsimidine [4, 5], which also have a 3, 4-dihydroisoquinoline ring. The maximum peak in the spectrum of thalmethine is the peak of the molecular ion with m/e 592 (100% intensity).

The peak of the ion $(M - 1)^+$ amounts to 87% of the main peak. The results of a study of the mass spectrum confirm the structure proposed for thalmethine [3]. The mass spectrum was taken on a MKh-1303 instrument (40 eV, 130° C, direct introduction into the ion source).

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Institute of the Chemistry of Plant Substances, AS UzSSR