ALKALOIDS OF Thalictrum sultanabadense

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UDC 547.944.945

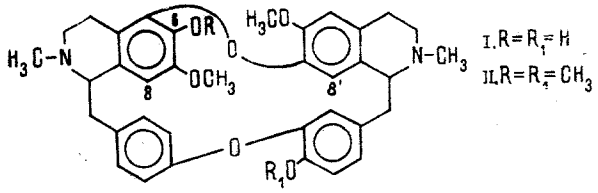
Continuing a study of alkaloids of plants of the genus Thalictrum, we have investigated Th. sultanabadense Stapf, collected at Lyashkaraksae, Tashkent oblast. Hernandezine has been isolated from the epigeal part of this plant [1, 2].

By separating the combined bases of the epigeal part of Th. sultanabadense growing in the gorge of the R. Shargun', Gissar range (Uzbek SSR) we obtained a yellow amorphous phenolic base (I). The UV spectrum ($\lambda_{max}^{ethanol}$ 286 nm) is characteristic for the benzyltetrahydroisoquinoline alkaloids. NMR spectrum of (I) ($CDCl_3$, δ scale) showed signals of two $N-CH_3$ groups at 2.56 and 2.17 ppm, of two OCH_3 groups at 3.87 and 3.81 ppm; and a broad two-proton signal at 4.63 ppm due to the protons of two hydroxy groups.

In the 5.95-6.76 region there are the signals of ten aromatic protons. Diagnostic in the NMR spectrum of (I) is a two-proton singlet at 5.95 ppm due to the C-8 and C-8' protons, which enables (I) to be assigned to the alkaloids of the thalmine group [3]. The molecular weight of (I) is 594 (mass spectrometry). The properties mentioned showed that (I) is a new base. We have called it thalbadensine. The methylation of (I) with diazomethane gave its O,O-dimethyl ether (II) with a molecular weight of 622 (mass spectrometry) identical with O-methylthalmine [4]. The NMR spectrum of (II) showed the signals of two additional methoxy groups at 3.84 and 3.61 ppm. The signal at 3.61 ppm, absent from the NMR spectrum of (I) is due to the presence in (II) of a methoxy group at C-6 [3, 4]; consequently in thalbadensine one hydroxy group is located at C-6. The position of the second hydroxy group was established on the basis of a study of mass spectra.

The mass spectra of (I) and (II) have strong peaks with m/e 381 (M – 212) and 395 (M – 226), respectively, showing that the second hydroxy group is present in the diphenyl oxide part of the molecule.

On the basis of the above facts structure (I) is suggested as the most probable for thalbadensine.



Thus, from Th. sultanabadense, not previously studied chemically, hernandezine and the new biscoclaurine base thalbadensine have been isolated.

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0009-3130/78/1401-0114$07.50