ALKALOIDS OF *Delphinium speciosum*

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UDC 547.944/945

We have investigated the alkaloids of the epigeal part of the previously unstudied species *Delphinium speciosum* M. B. [1] collected in the environs of Bakuriani (Georgian SS), in the budding period. Ordinary chloroform extraction yielded 1.01% of total alkaloids of the dry weight of the plant.

On separating the total alkaloids we isolated methyllycaconitine, lycoctonine, anthranoyllycoctonine, and gigactonine, which were identified on the basis of an analysis of spectral characteristics and a comparison of the ^{13}C NMR spectra. In addition to these, a base was isolated with mp 180-182°C (acetone), composition $C_{22}H_{35}NO_5$ (I). The NMR spectrum of (I) had the signals of tertiary C-methyl group (0.97 ppm, 3 H, singlet), of a N-ethyl group (1.04 ppm, 3 H, triplet, J = 7 Hz), and of a methoxy group (3.82 ppm, 3 H, singlet), and also one-proton signals at 4.12 ppm (triplet, J = 5 Hz) and 4.6 ppm (doublet, J = 7 Hz). The IR spectrum showed the absorption bands of hydroxy groups at 3400-3600 cm^{-1} and of ether bonds at 1100 cm^{-1}. The mass spectrum of (I) was characteristic for alkaloids with the lycoctonine skeleton and was close to the spectrum of karakoline [2, 3]. The maximum peak in the mass spectrum of (I) was the peak of the $M^+ - 17$ ion, showing the presence of the hydroxy group at C-1 [2]. Acetylation of the alkaloid with acetic anhydride in the presence of pyridine yielded the triacetate (II) with mp 162-164°C (acetone), showing the presence of three secondary hydroxy groups. Its mass spectrum contained the peak of the molecular ion M^+ 519 (8%), and also the peaks of ions with m/z 476 (8%), 460 (100%), 416 (15%) and 400 (12%). The PMR spectrum contained the signals of a N-ethyl, a tertiary C-methyl, and of three acetoxy groups, and also one-proton signals at 4.68 ppm (triplet, J = 5 Hz), 4.75 ppm (quartet, ABX system, $J_{AX} = 10$ Hz, $J_{BX} = 7$ Hz) and 5.22 ppm (doublet, J = 7 Hz), showing the presence of hydroxy groups at C-14, C-1, and C-6 [3, 4]. The acetylation of (I) with acetyl chloride gave the tetraacetate (III). Its mass spectra contained the peak of the molecular ion M^+ 561 (1%), and also the peaks of ions with m/z 502 (77%), 442 (33%), 400 (100%), and 372 (33%). According to these results, the fourth hydroxy group must be located at C-8. The information obtained indicated that (I) was alkaloid B, isolated previously from *Delphinium bicolor* Nutt. [4-7]. A direct comparison with alkaloid B kindly supplied by Prof. M. N. Benn showed their identity.

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0009-3130/84/2005-0642$08.50