(=CO); 1630 (conjugated double bond); 1465 (-CH₃); a strong absorption band appeared at 1060 cm^{-1} , which is characteristic for glycoalkaloids [5, 6]. The results correspond to the characteristics given in the literature for pseudojervine [2, 6].

From the chloroform fraction after the isolation of jervine, a 5% ethanolic solution of digitonin precipitated a complex compound the decomposition of which yielded substance (III) – $C_{2,7}H_{4,3}O_2N$, mp 237-239°C (ethanol) [4, 7]. The base dissolved in concentrated sulfuric acid, giving a yellow coloration rapidly changing to orange, and then to red and to red-brown.

The results given agree with those found in the literature for rubijervine [2, 5, 7].

Chromatography of the jervine fraction on a column of cellulose impregnated with formamide and elution by chloroform gave substance (IV), with mp 216-218°C (ethanol). Its IR spectrum showed absorption bands at (cm^{-1}) 3500, 3200 (-OH, =NH); and 1470 (-CH₃); the compound gave a characteristic pink-orange coloration, changing after 10 min to crimson and after an hour to red-violet. On comparing the results obtained with literature information, the base was identified as the alkaloid alkamine-x.

From the results of biological studies, a specific pharmacological activity has been established for some of the alkaloids isolated from *Veratrum lobelianum* Bernh. growing in Georgia.

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KARASAMINE AND 1-BENZOYLKARASAMINE - NEW ALKALOIDS

FROM Aconitum karakolicum

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Continuing the separation of the total alkaloids of the epigeal part of Aconitum karakolicum Rapaics., collected in the valley of the R. Irisu (Kirghiz SSR) in the budding period, in addition to karacoline, acetylnapelline, napelline, songorine, phenyl- β -naphthylamine, and napelline N-oxide [1-4], we have isolated delsoline, monticoline, neoline, and two new alkaloids which we have called karasamine (I) and 1-benzoylkarasamine (II).

Karasamine (I) has the composition $C_{24}H_{39}NO_5$, M⁺ 391, mp 110-112°C (acetone), and its IR spectrum has absorption bands of hydroxy groups at 3180 and 3590 cm⁻¹ and of ether bonds at 1100 cm⁻¹. The NMR spectrum of the alkaloid includes the signals of an N-ethyl group (1.03 ppm; 3 H, triplet), of a tertiary C-methyl group (0.81 ppm, 3 H, singlet), and of two methoxy groups (3.22 and 3.30 ppm, 3 H each). The mass spectrum of the alkaloid is characteristic for bases with a lycoctonine skeleton [5] and is similar to that of karakoline [6, 7], the developed formula of which differs from that of (I) by the presence of a hydroxy group in place of a methoxy group in the latter. In the mass spectrum of (I), the maxima peak is that of the ions with M⁺ - 17, showing the presence of a hydroxy group at C-1 [5]. The selective methylation of karakoline (III) with methyl iodide in dioxane gave the C₁₄-monomethyl ether of karakoline, which was identical with karasamine according to a mixed melting point, TLC,

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and IR spectroscopy. These facts permit formula (I) to be proposed for the structure of karasamine.



Alkaloid (II) has the composition $C_{25}H_{35}NO_5$, M⁺ 495, mp 206-208°C (acetone) and its IR spectrum contains absorption bands of hydroxy groups at 3400 cm⁻¹, of an ester carbonyl at 1710 cm⁻¹, and of ether bonds at 1100 cm⁻¹. According to its NMR spectrum, the base contains an N-ethyl group (1.19 ppm, 3 H, triplet), a tertiary C-methyl group (0.74 ppm, 3 H, singlet), two methoxy groups (3.21 and 3.34 ppm; 3 H each, singlets), and a benzoyloxy group (7.38 and 7.95 ppm; 5 H, multiplets).

Alkaline hydrolysis gave benzoic acid and an amino alcohol that proved to be identical with karasamine (I) according to a mixed melting point with an authentic sample, a comparison by TLC, and by spectroscopic characteristics. Thus, it remained to determine the position of the benzoyloxy group. The mass spectrum of the alkaloid, in which the maximum peak $(m/z \ 374)$ is due to the elimination of a benzoyloxy group is close to those of karakoline derivatives with a benzoyloxy group at C-1 [7]. In addition, in the NMR spectrum of (II) there is a one-proton quadruplet at 5.18 ppm (J₁ = 10 Hz; J₂ = 7 Hz), which is characteristic for a C-1 β proton geminal to a C-1-benzoyloxy group [8, 7] and which is absent from the spectrum of the amino alcohol. These facts indicate that the benzoyl group is located at C-1 (II). 1-Benzoyloxykarasamine is the first representative among alkaloids with a lycoctine skeleton containing an ester substituent at C-1.

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