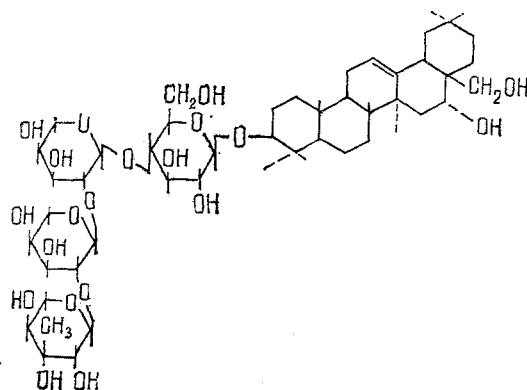


Thus, the structure of androseptoside F can be represented by the following formula:



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#### ALKALOIDS OF *Veratrum lobelianum*

N. L. Machaidze and I. S. Sikharulidze

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*Veratrum lobelianum* Bernh. (family *Liliaceae*) is widely distributed on Georgian territory [1]. According to literature information, the plants growing in other regions of the Soviet Union are rich in alkaloids [2]. On studying the dynamics of the accumulation of the combined alkaloids according to the vegetation phases of plants, collected in the region of the village of Bakuriani (Georgian SSR), we obtained the following results:

Plant organ	Vegetation period	Height of the plant, cm	Alkaloid content, %
Epigeal part	Beginning of vegetation	10-15	1.50
Hypogeal part	"	"	2.38
Epigeal part	Active vegetation	70-80	0.16
Hypogeal part	"	"	2.48
Epigeal part	End of vegetation	100 and above	Traces
Hypogeal part	"	"	2.32

From the combined alkaloids obtained by treating the roots and rhizomes of *Veratrum lobelianum* with chloroform, we obtained, in the form of its sulfate, substance (I) with mp 298-300°C (ethanol). By subsequent boiling with a 5% solution of KOH in ethanol and recrystallization from methanol, we obtained a base  $C_{27}H_{39}NO_3$ , with mp 245-247°C (methanol),  $[\alpha]_D^{20} -150^\circ$  (c 2.0; ethanol) [3]. Its IR spectrum showed absorption bands at ( $cm^{-1}$ ) 3300, 3200 ( $-OH$ ;  $=NH$ ); 1715 ( $=CO$ ); 1635 (conjugated double bond). Its amount in the roots in the active vegetation phase was 0.5%.

By comparing the results of analysis with those given in the literature, it may be considered that alkaloid (I) is jervine [4].

On extraction of the meal with ethanol, from an ethereal fraction we isolated a crystalline substance (II) —  $C_{33}H_{49}NO_8$ , with mp 283-285°C,  $[\alpha]_D^{20} -145^\circ$  (c 2.0; chloroform) [5, 6]. The IR spectrum of (II) was similar to that of jervine: ( $cm^{-1}$ ) 3500, 3300 ( $-OH$ ,  $=NH$ ); 1700

I. G. Kutateladze Institute of Pharmacochimistry, Academy of Sciences of the Georgian SSR, Tbilisi. Translated from *Khimiya Prirodnykh Soedinenii*, No. 5, pp. 659-660, September-October, 1982. Original article submitted March 19, 1982.

(=CO); 1630 (conjugated double bond); 1465 ( $-\text{CH}_3$ ); a strong absorption band appeared at  $1060\text{ cm}^{-1}$ , 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) —  $\text{C}_{27}\text{H}_{43}\text{O}_2\text{N}$ , mp  $237\text{--}239^\circ\text{C}$  (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  $216\text{--}218^\circ\text{C}$  (ethanol). Its IR spectrum showed absorption bands at ( $\text{cm}^{-1}$ ) 3500, 3200 ( $-\text{OH}$ ,  $=\text{NH}$ ); and 1470 ( $-\text{CH}_3$ ); 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*

M. N. Sultankhodzhaev, M. S. Yunusov,  
and S. Yu. Yunusov

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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, acetyl napelline, napelline, songorine, phenyl- $\beta$ -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  $\text{C}_{24}\text{H}_{39}\text{NO}_5$ ,  $\text{M}^+$  391, mp  $110\text{--}112^\circ\text{C}$  (acetone), and its IR spectrum has absorption bands of hydroxy groups at  $3180$  and  $3590\text{ cm}^{-1}$  and of ether bonds at  $1100\text{ cm}^{-1}$ . 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 lycotonine 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  $\text{M}^+ - 17$ , showing the presence of a hydroxy group at C-1 [5]. The selective methylation of karakoline (III) with methyl iodide in dioxane gave the  $\text{C}_{14}$ -monomethyl ether of karakoline, which was identical with karasamine according to a mixed melting point, TLC,

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