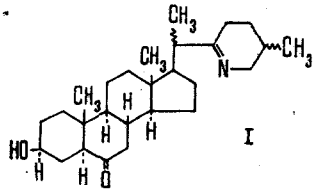
On the basis of the facts given, it may be considered that korsiline has the most probable structure and partial configuration (I):



I

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SYNTHESIS OF QUATERNARY SALTS OF DI(PYRROLIZIDIN-4-YLMETHYL-DIOXOLANYL)ETHANE AND -ETHYLENE

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Quaternary salts of di(aminomethyldioxolanyl)ethane and -ethylene possess a high curaremimetic activity [1]. With a change in the substituents of the quaternary nitrogen atoms their muscle-relaxing activity is modified. One of the preparations of this series has entered medical practice under the name of "dioksonii." It appeared of interest to synthesize derivatives of di(methyldioxolanyl)ethane or -ethylene with pyrrolizidine nuclei. With this aim, we have studied the reaction of 1,2-di(4-chloromethyl-1,3-dioxolan-2-yl)ethane and -ethylene (I and IV) with pyrrolizidine alkaloids and their derivatives. The initial 1,2-di(4-chloromethyl-1,3-dioxolan-2-yl)ethane and -ethylene were obtained by the reaction of the methyl diacetals of succinaldehyde and malealdehyde with glycerol α-monochlorohydrin [2, 3]. The reaction took place smoothly when one equivalent of 1,2-di(4-chloromethyl-1,3-dioxolan-2-yl)ethane or -ethylene was heated with two equivalents of the base (lindelofine (IIa), lindelofidine (IIb) or hydroxyheliotridane (IIc)) at 135-145°C for 4-5 h; the bis-quaternary salts (IIIa-b and Va-c) were formed with high yields (75-90%).

The yields and some physicochemical properties of the compounds obtained are given below (compounds (IIIa and b) and (Va-c) were purified by reprecipitation of ethanolic solutions with ether):

The structures of the compounds obtained were shown by the results of elementary analysis and by IR spectroscopy.

TABLE 1

Compound	Initial compound	Yield, %	mp, °C	Empirical formula
IIIa	I, IIa	91	209—10	$C_{40}H_{70}O_{12}N_2Cl_2$
IIIb	I, IIb	91	170—72	$C_{26}H_{46}O_6N_2Cl_2$
Va	IV, IIa	75	68—70	$C_{40}H_{68}O_{12}N_2Cl_2$
Vb	IV, IIb	84	88—90	$C_{26}H_{44}O_6N_2Cl_2$
Vc	IV, IIc	77	168—70	$C_{26}H_{44}O_6N_2Cl_2$

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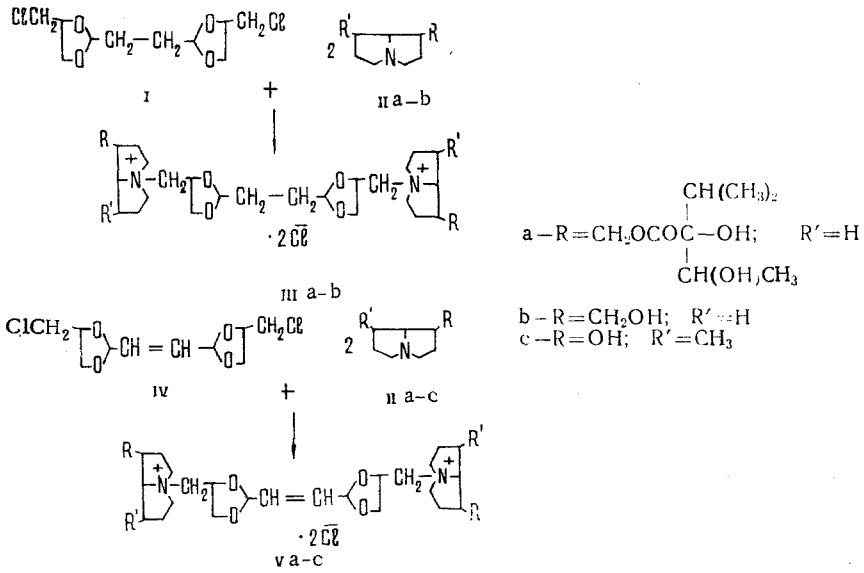

Pharmacological investigations showed that all the compounds synthesized possess curaremimetic action, but they are inferior to the known drugs diplacine and dioksonii.

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ALKALOIDS OF THE CAPSULES OF THE OPIUM POPPY

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UDC 547.94+633.853

We have studied the alkaloid composition of the capsules of the opium poppy collected in the period of full biological ripeness in the Moscow and Poltava oblasts. The alkaloids were extracted from the comminuted capsules with methanol. The chromatography of the methanolic extract in a thin layer of silica gel W in the benzene–methanol (9:2) and chloroform–ethanol–acetone–ethyl acetate (6:2:1:1) systems revealed the presence of from 14 to 18 bases in different varieties of poppy. The combined alkaloids from the main industrial variety Novinka-198 were treated successively with various organic solvents. The fractions obtained were chromatographed on columns of alumina (activity grade II-V). The alkaloids were eluted from the columns with diethyl ether, chloroform, mixtures of chloroform and methanol with different concentrations, and pure methanol. The following alkaloids were isolated and were identified by their melting points, mixed melting points with authentic samples, and IR spectra: papaverine, narcotine, narcotoline, (+)-laudanidine, codamine, morphine, codeine, and thebaine [1]. In addition, we isolated a noncrystalline base which was identified by its UV, IR, mass, and NMR spectra and the properties of certain derivatives as (+)-reticuline [2-4].

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