TABLE 1

Reaction product	Reaction temperature, °C	Yield, %	Solvent for recrystallization	Chloroform–ether (1:1), Al_2O_3	Mol. wt. (mass (spectrometrically)
IIa	70	5	124–125 (hexane)	0 50*	—
IIIa	"	41	162–163 (benzene)	0,24*	232
IIIa	20	44,5	162–163 (benzene)	0,24*	232
IIb	70	4,3	92–94 (hexane)	0,26	246
IIIb	"	22,4	154 (benzene)	0,09	—
IIc	70	2,6	132–134 (hexane)	0,32	—
IIIc	"	21	166–167 (benzene)	0,1	—
IVa†	—	32	72–73 (benzene–petroleum ether)	—	—
IVb†	—	30	68–69 (hexane)	0,09	—
Va‡	—	35	86–87 (hexane)	0,16	172
Vb	—	33,3	79–81 (hexane)	0,15	—
Vc	—	24	94–96 (ether)	0,12	—
VI	20	54	163–164 (benzene)	0,04	—

*The R_f values were determined on silica gel in the chloroform–methanol (25 :1) system.

†Compound (IVa, b) were obtained by the hydrolysis (IIa, b)

‡Compounds (Va-c) were isolated from (IVa-c).

The yields and some physicochemical properties of the compounds obtained are given in Table 1.

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ALKALOIDS OF Corydalis severtzovii

STRUCTURE OF SEVERTZINE

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Continuing a study of the alkaloid composition of various organs of the plant Corydalis severtzovii from different growth sites [1-3], we have investigated the epigeal part of the plant collected on April 21, 1973 in the Chimkent oblast of the Kazakh SSR in the flowering period. Chloroform extraction gave 1.06% of the total alkaloids. From the nonphenolic ether-soluble alkaloids we isolated protopine, allocryptopine, cryptopine, corlumine, and a base with mp 195-196°C; from the phenolic ether-soluble alkaloids we isolated four bases which were identified by comparing their spectral characteristics, by the preparation of salts, and also by mixed melting points with authentic samples as *l*-scoulerine [4], coramine [5], coclaurine [6], and isoboldine [7], and a new base with mp 94-95°C (with foaming; from methanol), $[\alpha]_D - 52°$ (c 0.91; chloroform) which we have called severtzine.

The UV spectrum of the base has three maxima at 221, 291, and 326 nm (log 4.45, 3.64, and 3.76, and the IR spectrum has absorption bands at (cm^{-1}), 920, 1050 (methylenedioxy group), 1600 (aromatic

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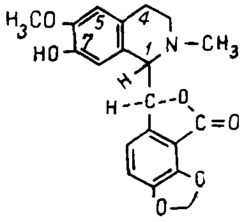
ring) 1760 (carbonyl group), and 3500 (hydroxy group). The mass spectrum of the base shows the peak of the molecular ion with m/e 192 (100%), 177, and 149. The PMR spectrum of severtzine (JNM-4H-100/100 MHz, HMDS, δ scale, $CDCl_3$) shows signals in the form of three-proton singlets at 2.38 ppm ($N-CH_3$) and 3.72 ppm (OCH_3), a two-proton singlet at 6.00 ppm (CH_2O_2), one-proton singlets at 6.37 and 6.67 ppm (para aromatic protons), and one-proton doublets at 6.86 and 7.02 ppm (J = 8 Hz; ortho aromatic protons) and at 3.92 and 5.54 ppm (J = 3.8 Hz).

The facts given above permit severtzine to be assigned to the phthalideisoquinoline alkaloids [8] and the composition $C_{20}H_{19}O_6N$ and the developed formula $C_{16}H_{10}(OCH_3)(CH_2O_2)(N-CH_3)(OH)(-C{<}^{O}_{O})$ to be proposed for it.

In the mass spectrum of severtzine, the maximum peak is due to an ion with m/e 192, which shows that in the isoquinoline part of the molecule there are a methoxy group and a hydroxy group. On methylation of the base with diazomethane, O-methylsevertzine was obtained, with mp 179-180°C, and this, in its spectral characteristics and by a mixed melting point, was found to be identical with *l*-adlumine [9]. The hydroxy group in the isoquinoline moiety must be positioned at C_7, since according to its PMR spectrum and the correlation with *l*-adlumine severtzine belongs to the α series and is not identical with corledine, which has a hydroxy group at C_6 [10].

Thus, severtzine is a diastereoisomer of corlumidine [11, 12] with the structure



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