from Th. foetidum. The properties of thalfoetidine are very close to those of thalictirnine. A comparison of the IR spectra (in chloroform) of the two substances has shown their identity. We are obliged to Dr. N. M. Mollov for the IR spectrum of thalfoetidine.

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THE STRUCTURE OF SEWKORINE

R. N. Nuriddinov and S. Yu. Yunusov

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From the epigeal part and bulbs of Korolkowia sewerzsowii Rgl., collected in the flowering stage in the Fergana oblast, chloroform extraction has yielded the new alkaloid sewkorine with mp 237-238° C (from methanol), $[\alpha]_D$ −40.2° (c 1,316; CH_3OH), composition $C_{34}H_{55}O_6N \cdot 1.5\ H_2O$. The base forms a hydrobromide with mp 221-223° C and a hydrochloride with mp 214-216° C. IR spectrum of sewkorine: ν_{max} 1100-1030 cm^{-1}, 3430-3350 (OH); 1450, 2860-2840 ($C-CH_3$); 2790 cm^{-1} ($N-CH_3$). The hydrolysis of sewkorine yielded *l*-glucose and a mixture of amino alcohols which gave two spots on a thin layer of alumina with R_f 0.9 and 0.5 (toluene–petroleum ether–methanol (5:5:0.5) system). The aglycones in benzene were passed through alumina. The first fraction gave a base with R_f 0.9 and the second fraction substances with R_f 0.9 and 0.5. The third and fourth fractions yielded the new base sewkoridine with mp 179–180° C (from acetone) and R_f 0.5, $[\alpha]_D$ −78° (c 0.846; CH_3OH), composition $C_{28}H_{45}ON$, which forms a digitonide, a hydrochloride with mp 282-283° C, a hydrobromide with mp 273-275° C, a hydrogen sulfate with mp 291-292° C, and an acetyl derivative with mp 151-153° C ($C_{30}H_{47}O_2N$). Sewkoridine has a secondary hydroxyl and a N-methyl group. IR spectrum: ν_{max} 3415, 1070 cm^{-1} (OH), 2940–2830, 1460–1440 ($C-CH_3$) and 2790 cm^{-1} ($N-CH_3$).

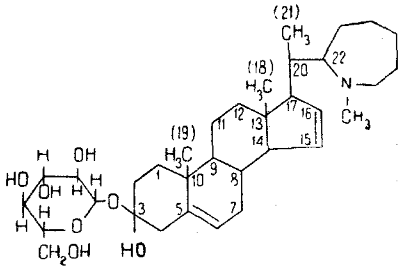
Substance	Resonance signals, τ						
	(S), 3H, $C-19CH_3$	(S), 3H, $C-18CH_3$	(D), 3H, $C-21CH_3$	(S), 3H, $N-CH_3$	(M), 3H, (olefin)	(M), H, $HCOCOCH_3$	(S), 3H, $COCOCH_3$
(I)	9.06	9.50	9.21	7.99	4.63	—	—
(II)	9.05	9.49	9.21	7.88	4.67	5.40	8.04

Note. S–singlet; D–doublet; M–multiplet.

When sewkoridine was heated with 10% sulfuric acid, an anhydrobase with mp 134–136° C, R_f 0.9, was obtained. The IR spectrum of the anhydrobase lacked the absorption band of the hydroxy group. The IR spectra of sewkoridine and solasodine are very similar, differing only in the absence of a few absorption bands and the presence of a few others. On the basis of these results, sewkoridine can be classified as a steroid alkaloid, which is confirmed by its NMR and mass spectra. The features of the NMR spectra of sewkoridine (I) and O-acetylsewkoridine (II), taken in $CDCl_3$, are given in the table.

The signals at 9.06, 9.05, 5.4, 4.63, and 4.67 τ show that sewkoridine has a 3β-OH group and a Δ^5 double bond [1]. The splitting off of the hydroxy group from C-3 and hydrogen from C-4 in the form of water from sewkoridine lead to the formation of the anhydrobase. The mass spectrum of sewkoridine shows the peaks of ions with m/e 112 (100%); 125 (52%); 138 (49%); M–57 (5%); M–18 (44%); M–15 (17%); 411 (M^+) (72%) (2). The absence of a resonance signal from the C-27 CH_3 and the presence of the peak of an ion with m/e 112 in the spectra of this substance shows that its molecule contains a monosubstituted hexamethylenemethylamine. The formation of fragments with m/e 125 and 138 shows that the second double bond in sewkoridine is present between C-15 and C-16.

The determination of the structure of sewkoridine enables the following structural formula to be proposed for it.



In the mass spectrometry of sewkoridine, α-cleavage leads to the formation of an ion with m/e 112; the splitting off of hydrogen from C_{22}, β-cleavage and the elimination of hydrogen from the C-21 CH_3 gives an ion with m/e 138; β-cleavage and migration of hydrogen from C_{22} to C_{20} following the splitting out of the methyl group gives an ion with m/e 125.

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THE SEEDS OF THERMOPSIS DOLICHOCARPA: A NEW SOURCE OF CYTISINE

T. T. Shakirov, K. A. Sabirov, and R. I. Shamsutdinov

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The alkaloid cytisine is used in medicine in reflex cessations of breathing and in operations [1]. This substance is obtained industrially from the seeds of Thermopsis lanceolata with a yield of about 0.8% [2].

We have studied the seeds of Th. dolichocarpa V. Nik., which is widely distributed in Central Asia [3], and have found a considerable amount of cytisine in them.

To isolate the alkaloids, the ground seeds of Th. dolichocarpa, moistened with 10% ammonia, were extracted with chloroform. The extract was concentrated and the alkaloids were extracted with 10% sulfuric acid. The sulfuric acid solutions of the alkaloids were made alkaline and extracted first with ether and then with chloroform. The ethereal fraction yielded 0.15% and the chloroform fraction 3.55% of total alkaloids. The total ethereal alkaloids consisted mainly of pachycarpine. The total chloroform alkaloids consisted of a semicrystalline mass, which was washed several times with acetone until the crystals had lost their color and these were then filtered with suction and recrystallized from acetone. The crystals obtained melted at 154-156°C. A mixture of these crystals with cytisine showed no depression of the melting point. Treatment of the acetone mother liquors with nitric acid gave an additional amount of cytisine nitrate.

Thus, the seeds of Th. dolichocarpa contain 3.7% of total alkaloids including 0.1% of pachycarpine and 1.62% of cytisine. Consequently, these seeds may be an additional source for the production of cytisine.

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