are characteristic for the typical steroid alkaloids edpetilidine and sevcorine [1, 8, 9].

The physicochemical properties of (I) agree well with those of sevcoridinine obtained by the hydrolysis of sevcorine [1]. A mixture with an authentic sample of sevcoridinine gave no depression of the melting point, and their IR spectra were identical.

In order to establish the native character of the alkaloid (I), sevcorine was dissolved in 5% sulfuric acid and the mixture was left at room temperature for a day and was then made alkaline with 25% ammonia solution and extracted with chloroform (the conditions for the isolation of sevcorine from the plant extract). Under these conditions sevcorine underwent no hydrolysis but was covered quantitatively. Consequently, the alkaloid (I) is native.

Thus, from the epigeal part of *K. sewerzowii* growing in the Katrantau we have isolated korsidine, korseveriline, and sevedine and have found sevcoridinine in the plant for the first time.

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ISOLATION OF LYCORINE FROM *Ungernia tadshicorum*

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UDC 547.944/945

Lycorine hydrochloride is used as an expectorant and also for the treatment of acute and chronic bronchitises and bronchial asthma [1]. In the medicinal industry, lycorine hydrochloride is obtained from the leaves of *Ungernia sewerzowii* [2, 3]. We have begun a study of other species of *Ungernia* in order to find an additional source of lycorine. We have investigated the epigeal part of *Ungernia tadshicorum* growing in the TadzhSSR [4].

We have studied the possibility of using ion-exchange resins for isolating lycorine from aqueous extracts of the leaves of this plant and, in particular, processes of the extraction, sorption, and desorption of lycorine. The experiments showed the economic desirability of using a 1% solution of hydrochloric acid for the extraction of lycorine, sorption of the lycorine on KU-1 cation-exchange resin, and desorption from the resin with a 1.5% solution of ammonia in 85% ethanol.

The comminuted raw material (75 kg) collected on April 20 on the slopes of the Hissar range (TadzhSSR) in the stage of the vegetation of the leaves was loaded into a battery of three extractors and was extracted continuously with 1% hydrochloric acid. The acid extract of the alkaloids was passed through a battery of adsorbers consisting of three columns charged with KU-1 cation-exchange resin in the H^+ form (2.5 kg each). The rate of flow of the extract was 600-700 liters/h·m^2.

After sorption, the alkaloids were desorbed from the cation-exchange resin with a 1.5% solution of ammonia in 85% ethanol. The rate of flow of the eluate was 200 liters/h·m^2. The

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Translated from Khimiya Prirodnykh Soedinenii, No. 6, p. 818, November-December, 1978. Original article submitted June 30, 1978.

0009-3130/78/1406-0703$07.50

ethanolic solution was concentrated, and the alkaloids were extracted from the aqueous residue with chloroform. The chloroform extract was dried in vacuum to a still residue and was dissolved in 10% sulfuric acid. The acid extract was made alkaline with 25% ammonia, whereupon free lycorine precipitated.

The isolated base was converted by the action of 5% hydrochloric acid into the hydrochloride. Yield 45 g (0.06% on the weight of the raw material). Recrystallization from water in the presence of activated carbon gave 30 g (0.04% on the weight of the raw material) of lycorine hydrochloride satisfying the requirements of Interrepublican Technical Specification 42 No. 3909-70.

Thus, the leaves of *U. tadshicorum* can be recommended as an additional source of raw material for the production of lycorine.

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REDUCTION AND PURIFICATION OF DIHYDROLYCORINE

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UDC 547.944/945

Dihydrolycorine hydrochloride possesses a pronounced antiarrhythmic action [1, 2].

The starting material for the production of this drug is lycorine base [3]. To obtain dihydrolycorine hydrolchloride, lycorine base (5 g) is dissolved in 10% acetic acid (1:10) and is reduced in the presence of platinum black (0.25 g) in an atmosphere of hydrogen for 5 h. After this, the solution is filtered and made alkaline, and the crystals that deposit are separated off. Yield 4.2 g (84%). The action of 5% hydrochloric acid gives the hydrochloride, which is recrystallized from water (1:3.5). Yield 3.26 g (64.1%). On TLC, the dihydrolycorine hydrochloride obtained in this way gives two spots. Consequently, it contains a certain percentage of lycorine. The presence of lycorine causes vomiting in animals, and therefore we have proposed a method for purifying dihydrolycorine, the essence of which is as follows. A weighed sample of dihydrolycorine hydrochloride (10 g) is dissolved in distilled water (1:50), the solution is made alkaline with 25% ammonia, and the crystals that deposit are separated off, washed with water three times and with acetone and dried. Then the base so isolated is converted by nitric acid into dihydrolycorine nitrate. Yield 10.06 g. Lycorine itself does not give a nitrate.

The precipitate of dihydrolycorine nitrate is separated off, dried, and dissolved in distilled water. Then the solution is made alkaline and the crystals that deposit are separated off, washed with water, and dried. Yield 8.35 g. The action of a 5% solution of hydrochloric acid gives the hydrochloride. The precipitate is separated off, washed with acetone, and recrystallized from water. Yield 7.85 g (78%).

The dihydrolycorine hydrochloride obtained is not contaminated with lycorine. A biological method of analysis confirmed the homogeneity of the preparation.

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 0009-3130/78/1406-0704$07.50