A STUDY OF THE COMPOSITION OF THE ALKALOIDS OF ERGOT OF THE ERGOCRYPTINE STRAIN

A. N. Ban'kovskaya, L. D. Vechkanova, and A. I. Ban'kovskii

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We have previously [1-3] reported information on the chemical study of the ergotamine and ergometrine strains. In the present paper we give the results of an investigation of the spurs of ergot of the ergocryptine strain collected in the Mostisskii sovkhoz (L'vov oblast).

The alkaloids were extracted from the comminuted spurs with dichloroethane. The extract was treated with 2% tartaric acid solution, and the tartaric acid extracts were combined and made alkaline with ammonia, and the alkaloids were extracted with chloroform. After drying with anhydrous sodium sulfate, the extract was evaporated to small volume, and the alkaloids were precipitated with a sevenfold amount of petroleum ether. The yield of combined alkaloids was 0.36%.

The alkaloids were separated by column chromatography on alumina (activity grade IV). Elution with benzene gave a white crystalline substance with the composition $C_{32}H_{41}O_5N_5 \cdot 0.5\ C_6H_6$, mp 203-204°C (decomp.), $[\alpha]_D^{20}$ −187° (c 0.5; chloroform). The base is readily soluble in chloroform, benzene, methanol, and ethanol, and more sparingly in ether, and is insoluble in water; it forms a di(p-tolyl)-1-tartrate with mp 181-182°C (decomp.), a tartrate with mp 198-200°C (decomp.), and a phosphate with mp 189-190°C (decomp.). From the composition and the melting points of the base and its salts, a mixed melting point with an authentic sample, and the IR spectrum [4], it was identified as ergocryptine, its proportion in the combined alkaloids being 95%.

Elution with chloroform and chloroform containing methanol gave a second substance which was recrystallized from ethyl acetate; composition $C_{19}H_{23}O_2N_3 \cdot 0.5\ C_4H_8O_2$, mp 158-159°C, $[\alpha]_D^{20}$ +40° (c 1.8; ethanol), forming a hydrochloride with mp 246-247°C (decomp.) and a hydrobromide with mp 239-240°C (decomp.) From its composition, the melting points of the substance and its salts, a mixed melting point with an authentic sample, and its IR spectrum [4] it was identified as ergometrine, in an amount of about 5% of the combined alkaloids.

LITERATURE CITED

1. A. I. Ban'kovskii and A. N. Ban'kovskaya, Lekarstv. Rast., 15, 219 (1969).
2. L. D. Vechkanova, A. N. Ban'kovskaya, and A. I. Ban'kovskii, Khim. Prirodn. Soedin., 6, 382 (1970).
3. A. N. Ban'kovskaya, L. D. Vechkanova, and A. I. Ban'kovskii, Khim. Prirodn. Soedin., 6, 381 (1970).
4. A. Hofmann, Die Mutterkornalkaloide, Enke, Stuttgart (1964).

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