ALKALOIDS OF Glaucium fimbrilligerum

A. Kh. Yunusov, I. A. Israilov, and M. S. Yunusov

UDC 547.943

The alkaloids of Glaucium fimbrilligerum Boiss. were first isolated by S. Yu. Yunusov [1] and later by Slavik [2]. In view of the fact that one and the same plant may contain different alkaloids depending on its growth site and vegetation period [3], we have investigated Glaucium fimbrilligerum collected in the vegetation period in the environs of the village of Daraut-Kurgan (Pamir-Alai). Chloroform extraction showed that it contained 0.62% (0.52% of ethereal and 0.1% of chloroform) alkaloids on the weight of the dry plant. From the ethereal alkaloids we obtained sanguinarine sulfate and heleritrine. The mother liquor from the ethereal alkaloids was separated into phenolic (0.09%) and nonphenolic (0.41%) fractions.

The addition of an alcoholic solution of hydrobromic acid to the nonphenolic fraction precipitated a hydrobromide with mp 224-225°C (decomp.). Decomposition of the hydrobromide gave a base with mp 182-183°C (methanol) identical with an authentic sample of d-isocorydine isolated from Corydalis gortschakovii [4]. Protopine and allocryptopine were isolated from the mother liquor from the isocorydine hydrobromide.

The phenolic fraction of the ethereal alkaloids was chromatographed on a column of alumina. Elution of the alkaloids with benzene–methanol (99:1) yielded isocorydine and corydine, benzene–methanol (96:4) yielded d-isoboldine [5] and a base with mp 186-187°C (methanol), and benzene–methanol (7:3) yielded a base with mp 158-160°C and corytuberine [4]. The base with mp 186-187°C formed a white crystalline substance giving a crystalline hydrobromide with mp 188°C (ethanol), mol. wt. 317 (mass spectrometrically). Its UV spectrum had two maxima at 242 and 293 nm (log ε 3.71, 3.83). The IR spectrum of the base showed absorption bands at (cm^{-1}) 935 and 1040 (methylenedioxy group), 1505 (aromatic ring), and 3200-3600 cm^{-1} (hydroxy group). Acetylation of the base with acetic anhydride in pyridine gave a diacetate with mp 207-208°C (methanol). In the IR spectrum of the latter, the band of the hydroxy group had disappeared and a band of an ester grouping had appeared at 1735 cm^{-1}.

We are the first to have isolated isocorydine, isoboldine, and corytuberine from the plant Glaucium fimbrilligerum.

LITERATURE CITED

1. R. A. Konovalova, S. Yu. Yunusov, and A. P. Orekhov, Zh. Obshch. Khim., 9, 1939 (1939).
2. L. Slavikova and J. Slavik, Collection Czech. Chem. Commun., 36, 2385 (1971).
3. S. Yu. Yunusov, Khim. Prirodn. Soedin., 104 (1966).
4. M. U. Ibragimova, M. S. Yunusov, and S. Yu. Yunusov, Khim. Prirodn. Soedin., 438 (1970).
5. Z. F. Ismailov and S. Yu. Yunusov, Khim. Prirodn. Soedin., 43 (9166).

Institute of the Chemistry of Plant Substances, Academy of Sciences of the Uzbek SSR. Translated from Khimiya Prirodnykh Soedinenii, No. 5, pp. 681-682, September-October, 1973. Original article submitted March 20, 1973.