THE ISOLATION OF d-β-HYDRASTINE FROM *Corydalis pseudoadunca*

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UDC 547.944/945

The alkaloid d-β-hydrastine has been isolated from the epigeal part of *Corydalis pseudoadunca* (family Papaveraceae) [1]. The hydrochloride of the alkaloid (izokorin; "isocoryn") possesses antinarcotic properties [2].

We have proposed an ion-exchange method for the production of izokorin.

Comparative results on the extraction of d-β-hydrastine and other accompanying alkaloids from the rawmaterial by various organic solvents, water, and weak aqueous solutions of acids have shown that extraction with 1% sulfuric acid is the most suitable.

The process of the absorption and desorption of the alkaloid was studied on various cation-exchange resins. The best adsorbent proved to be KU-1 cation-exchange resin.

The proposed method is as follows. The comminuted raw material (10 kg) collected in July, 1974, in the Alai valley was extracted by the steeping method four times with 1% sulfuric acid. The acid extract of alkaloids was passed through adsorbers containing 2 kg of KU-1 cation-exchange resin in the hydrogen form. The alkaloid-saturated columns were washed with water and desorbed with a 1.5% solution of ammonia in 85% ethanol. The eluate was evaporated to an aqueous residue which was made alkaline to pH 9 with 25% ammonia solution and the alkaloids were extracted with chloroform. The extract was evaporated to dryness. The residue was recrystallized from methanol, which gave 20 g of technical d-β-hydrastine.

The technical d-β-hydrastine (20 g) was dissolved in 400 ml of 10% sulfuric acid, the solution was filtered and was made alkaline to pH 9-9.5 with 25% ammonia, and the alkaloids were extracted four times with chloroform. The extract was concentrated, and the residue was twice recrystallized from methanol, giving 13 g of d-β-hydrastine.

d-β-Hydrastine hydrochloride was obtained in ethanol by the addition of an ethanolic solution of hydrochloric acid; the yield was 0.10-0.14% of the weight of the air-dry raw material, depending on the vegetation period and the collection site.

Quantitative determination of izokorin was performed by two methods: mercurimetric [3], and by acid–base titration in anhydrous acetic acid using a solution of perchloric acid as the titrant [4]. The amount of izokorin in the medicinal form — a 1% ampul solution — was determined by the method of nonaqueous titration after preliminary evaporation of the solution. The pH of a 0.1% solution was established between 4.5 and 5.5.

The absence of foreign alkaloids in the preparation was checked by thin-layer chromatography on a nonfixed layer of alumina (activity grade III) in the benzene–ethanol (9:1) system; R_f value 0.45 ± 0.1. The stability of the powder and of the medicinal form for 2 yr has been established.

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Institute of the Chemistry of Plant Substances, Academy of Sciences of the Uzbek SSR, Tashkent. Translated from Khimiya Prirodnykh Soedinenii, No. 6, p. 815, November-December, 1978. Original article submitted June 16, 1978.

 0009-3130/78/1406-0700$07.50