

ALKALOIDS OF *Gentiana olgae*, *G. vvedenski*,  
*G. tianschanica*, and *Swertia connata*

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*Gentiana olgae* Rgl. et Schmalh. was collected in the eastern part of the Alai (Karagai-Tugai) in the early period of development of the leaves (July 30, 1964). The roots (500 g) were covered with ether. Four extracts were made. Then the roots were dried in the air until the ether had been evaporated off completely. Ethanolic extraction of the dry roots gave 3.8 g of combined alkaloids (0.76% of the weight of the air-dry roots). When this mixture was triturated with acetone, 0.74 g of gentiananine precipitated. The acetone was evaporated off and the resulting mixture was passed through a column of  $Al_2O_3$ . Ethereal eluates yielded 0.08 g of gentianadine [1] and ether-chloroform (1:1) eluates gave gentioflavine [2].

By methanolic extraction, 780 g of the epigeal part of *G. vvedenski* Grossh., collected on July 26, 1963 in the flowering period in the eastern part of the Alai (gorge of the R. Egzak), Kirghiz SSR, gave 2.4 g of combined alkaloids (0.3% of the weight of the air-dry plant material); on boiling with ether, the ethereal extract yielded 0.15 g of gentianine [3]. Treatment of the part insoluble in ether with acetone gave 0.25 g of gentiananine.

By chloroform extraction, the epigeal part (435 g) of *G. tianschanica* Rupg. collected during the time of flowering (August 2, 1968, Dzhungarskii Alatau, upper reaches of the R. Bien', Kazakh SSR) gave 0.41 g of benzene alkaloids and 0.47 g of chloroform alkaloids. The total was 0.86 g (0.2% of the weight of the air-dry plant). By boiling with ether and concentrating the extract, the benzene alkaloids yielded 0.17 g of gentianine. By treatment with acetone the chloroform alkaloids gave 0.14 g of gentiananine and 0.01 g of gentioflavine.

The epigeal part of *Swertia connata* Schrenk (300 g), collected in the flowering stage (August 1, 1968, Dzhungarskii Alatau, upper reaches of the R. Bien', Kazakh SSR) on chloroform extraction yielded 0.6 g of benzene alkaloids and 0.15 g of chloroform alkaloids. The total was 0.75 g (0.25% of the weight of the air-dry plant). On separating the benzene alkaloids according to their solubilities, 0.1 g of gentianine was obtained, while the chloroform alkaloids yielded 0.05 g of gentiananine and a very small amount of gentioflavin.

LITERATURE CITED

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