

ALKALOIDS FROM *Crinum moorei* INTRODUCED INTO GEORGIA

L. G. Kintsurashvili

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The family Amaryllidaceae is a rich source of pharmacologically active bases of the galanthamine and lycorine series, which are known for their anticholinesterase and expectorant properties [1].

This family includes species growing wild in Georgia and those introduced, for example, species of the genus *Crinum* [2].

The alkaloid content of the species *C. moorei* Hook is practically unstudied. In Georgia, this plant was introduced along the shores of the Black Sea [3].

Plants were collected during fruiting in 2005 near Kobuleti.

Ground bulbs (2 kg) were made basic with ammonia solution (12%). Alkaloids were extracted with CHCl_3 . The extracts were condensed and treated with H_2SO_4 solution (10%). The H_2SO_4 extracts were made basic with ammonia solution (25%) until the pH was 9. This isolated base A_1 . The basic aqueous mother liquor was extracted with ethylether (fraction A) and CHCl_3 (fraction B). The organic solvent was evaporated to dryness. The total A was dissolved in acetone. Upon standing, base A_2 crystallized. Adding HBr (conc.) isolated base A_3 hydrobromide. After separating A_3 , the mother liquor was condensed and passed over a column of Al_2O_3 (neutral, activity II, 1:10). Alkaloids were eluted with CHCl_3 and $\text{CHCl}_3\text{:CH}_3\text{OH}$ (98:2, 95:5, 90:10). Elution with the first two mixtures isolated alkaloid A_4 ; with the last, base A_5 .

Total alkaloids from the aerial parts and roots of *C. moorei* were isolated and separated into the pure bases in the same way as those from the bulbs.

Roots afforded bases A_{1-5} ; bulbs, A_{1-5} ; aerial parts, A_{1-3} and A_5 .

The isolated alkaloids were identified chemically by comparing their physical chemical and spectral properties (UV, IR, and PMR spectra) with those in the literature, by determining the mixed melting points with authentic alkaloid samples, and by measuring the mobilities on TLC (silica gel LS 5/40 μm) using $\text{CHCl}_3\text{:CH}_3\text{OH:NH}_4\text{OH}$ (25%) (86:14:1). Plates were developed using Dragendorff's solution and iodine vapor [4].

The experimental results showed that all isolated bases were known alkaloids: A_1 , lycorine [5]; A_2 , demethylhomolycorine [6]; A_3 , galanthamine [7]; A_4 , galanthine [8, 9]; A_5 , tazettine [10]. Galanthine was not found in the aerial organs.

The overall yield of total alkaloids in the aerial parts was 0.15%; from bulbs, 0.42%; from roots, 0.61%. The content of the pharmacologically active alkaloid galanthamine from the aerial part was 0.03%; in bulbs, 0.07; in roots, 0.08 [11].

Thus, *C. moorei* Hook introduced along the shores of the Black Sea is a highly productive alkaloid-bearing plant that contains the previously isolated alkaloid crinine in addition to lycorine, demethylhomolycorine, galanthamine, galanthine, and tazettine, which we isolated for the first time.

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