

ALKALOIDS FROM *Convolvulus lineatus* AND *C. Olgae* GROWING IN UZBEKISTAN

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Total bases (0.03%) were obtained previously from the aerial part of *Convolvulus lineatus* growing in Katta-Shir gorge of Turkestan Ridge. Convolvine and convolamine were isolated from them. Based on our preliminary research on this plant [2], the isolation of the aforementioned alkaloids required confirmation.

C. lineatus growing in Uzbekistan has not been investigated. We studied the plant collected from three sites of Fergana and Tashkent districts including near the villages Erdon and Nanai and along the banks of the Ertosh River. Chloroform extracts of dried and ground aerial parts gave 0.054%, 0.04, and 0.05 of alkaloid mixtures, respectively. TLC (KSK silica gel) using system 1 ($\text{CHCl}_3:\text{CH}_3\text{OH}$, 3.5:1.5) of the total bases detected six compounds with R_f values 0.10, 0.21, 0.41, 0.48, 0.58, and 0.70. TLC of all three mixtures showed identical spots that differed only in intensity.

A pure base as the nitrate salt with mp 204–206°C (acetone) with R_f 0.10 using system 1 was isolated from the total alkaloids in acetone. The nitrate base was a light-yellow fragrant oily liquid.

The UV spectrum of the alkaloidal base had one maximum with λ_{max} 307 nm ($\log \epsilon$ 2.36). Its IR spectrum contained absorption bands for stretching (2950–2802 cm^{-1}) and deformation (1465–1405) vibrations of CH_2 groups and a C–N single bond (1131, 1097, 1420); an isolated carbonyl (saturated aliphatic ketone) at 1714; and a N– CH_3 group at 2643. The PMR spectrum of the base exhibited two 3H singlets for protons of two N– CH_3 at 2.88 and 2.92 ppm; a multiplet (8H) for four CH_2 groups of two pyrrolidine cycles at 1.68–2.50; a multiplet (4H) for two CH_2 groups bonded to a carbonyl at 3.50–3.65; and resonances for protons of two methylenes bonded to N at 2.98–3.12 ppm. The mass spectrum contained a peak for the molecular ion with m/z 224 $[\text{M}]^+$ and fragment ions with m/z 140, 126, 98, and 84 that were characteristic for *N*-methylpyrrolidine derivatives.

The spectral data for the alkaloid agreed with those of the known alkaloid cuskhygrine, which was isolated earlier from *C. erinaceus* [3]. A mixed sample of the nitrate salt and an authentic sample of cuskhygrine did not show melting-point depression. Cuskhygrine was isolated from *C. lineatus* for the first time. Convolvine (R_f 0.30 using system 1) and convolamine (R_f 0.55 using system 1) are tropane-like alkaloids and have not been previously observed in *C. lineatus*.

C. Olgae Rgl. et Smalth is a branching low thorny bush that is widely distributed over all Central Asia and in Uzbekistan, in Surkhandar'ya district (Kashka-Dar'ya River basin) [4]. Alkaloids from this *Convolvulus* species have not been previously investigated. We studied alkaloids from the aerial part and roots of *C. Olgae* collected near Guzar of Kashkadar'ya district. According to quantitative analysis, a mixture of bases was present in the roots (0.045%) and aerial part (0.03%). Total alkaloids were obtained by CHCl_3 extraction with preliminary wetting of raw material with ammonia solution (5%). Comparative TLC using system 1 of alkaloids obtained from the two species (*C. lineatus* and *C. Olgae*) showed that both mixtures contained the same compounds. They differed in the intensity of spots for certain components. The main alkaloid in both mixtures was cuskhygrine with R_f 0.1 using system 1. Therefore, we obtained by a similar method from the alkaloid mixture from *C. Olgae* in acetone the nitrate salt with mp 204–206°C that did not depress the melting point when mixed with the sample of cuskhygrine nitrate from *C. lineatus*. Cuskhygrine was isolated from *C. Olgae* for the first time.

Thus, the liquid base kuskigirin was isolated for the first time from *C. lineatus* and *C. Olgae* as the salt, a derivative of *N*-methylpyrrolidine. It was found that *C. lineatus* does not contain tropane alkaloids.

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