

5. B. A. Yankovskii, D. N. Danil'chuk, B. V. Shemeryankin, V. P. Zakharov, and S. E. Khalnazarova, USSR Inventors' Certificate No. 1060188; Byull. Izobret., No. 46, 14 (1983).
6. A. G. Sokolov, Tr. NIUIF [Proc. Ya. V. Samoilo Scientific-Research Institute of Fertilizers, Insecticides, and Fungicides], 2, No. 135, 46 (1939).

DYNAMICS OF THE ACCUMULATION OF ALKALOIDS IN *Datura stramonium*

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Datura stramonium L. (family Solanaceae) is an annual herbaceous plant about 1-1.5 m in height. It is distributed in the south and in the central zone of the European part of the USSR and in the Caucasus and is found occasionally in Siberia, Central Asia, and in the Far East. It grows preferentially on loose fairly moist chernozem soils in small clumps around houses and gardens.

This plant is a supplementary source of hyoscyamine and ℓ -scopolamine, which are used in medical practice [1]. We have studied the dynamics of the accumulation of alkaloids in *D. stramonium* growing in the Kurgantepa region of the Andizhan province. The epigeal part and the roots of the plant were studied in three periods. Information on the determination of the sum of the bases and the amounts of the main alkaloids according to the phase of development is given below.

Phase of development	Plant organ	Total alkaloids, %	Amounts of the main alkaloids, % on the combined bases	
			hyoscyamine	1-scopolamine
Vigorous growth	Epigeal part	0.36	73.5	19.5
	Roots	0.12	66.2	18.5
Flowering	Epigeal part	0.26	69.3	17.2
	Roots	0.19	61.1	16.3
Fruit-bearing	Epigeal part	0.19	61.2	16.5
	Roots	0.22	55.2	15.5
	Seeds	0.42	72.5	20.5

The mixture of bases from each sample was separated by methods described in the literature [2, 3]. The total amount of alkaloids in the epigeal part proved to be the greatest in the period of vigorous growth, while in the roots it was during the period of whole fruit-bearing. The percentage of hyoscyamine and ℓ -scopolamine in the combined bases changes insignificantly with the phase of development and according to the organ of the plant. At the beginning of the vegetation period the alkaloids accumulated mainly in the epigeal part, and at the end of vegetation they did so in the roots and seeds [4]. Regardless of the phase of development, hyoscyamine predominated in all the plant organs: 61.2-73.5% of the combined bases.

Thus, it may be concluded that to obtain hyoscyamine and ℓ -scopolamine, it is desirable to collect the epigeal part in the phase of the vigorous growth of the plant, and the roots at the end of the vegetation phase.

LITERATURE CITED

1. M. D. Mashkovskii, Drugs [in Russian], Moscow, Part 1 (1984), p. 233.
2. R. T. Mirzamatov, V. M. Malikov, K. L. Lutfullin, and S. Yu. Yunusov, Khim. Prir. Soedin., 493 (1972).
3. R. T. Mirzamatov, V. M. Malikov, K. L. Lutfullin, and S. Yu. Yunusov, Khim. Prir. Soedin., 680 (1973).
4. S. Yu. Yunusov, Khim. Prir. Soedin., 104 (1966).

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