

DYNAMICS OF THE ACCUMULATION OF ALKALOIDS
IN THE PLANT *Physochlaina alaica*

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Physochlaina alaica E. Korot. (family Solanaceae) is a perennial herbaceous plant belonging to the endemic species of the Alai range.

We have studied the dynamics of the accumulation of alkaloids in this plant growing in the basin of the R. Shakhimardan on the northern slopes of this range. Information on the determination of the total bases and the amounts of the main alkaloids as functions of the phase of development are given in Table 1.

The mixture of bases of each sample were separated by methods described previously [1]. It was found that the greatest amount of alkaloids was present in the epigeal part during the period of the vigorous growth of the plant and budding and in the roots in the period of mass fruit-bearing and the withering of the epigeal part. Depending on the phase of development, the quantitative ratios between the alkaloids varied, as well. Thus, while in the period of vigorous growth the largest amount of hyoscyamine was found in the epigeal part and in the roots, in the period of the withering of the epigeal part its content was very low. With the development of the plant, the amount of 6-hydroxyhyoscyamine in the epigeal part decreased and that of scopolamine increased, and the opposite pattern was found in the roots.

Regardless of the phase of development, hyoscyamine predominated in all the organs of the plant (60.0-74.3% of the total bases).

Thus, it may be concluded that for this plant, as well, the laws of the dynamics of accumulation of alkaloids in the plant, of their role, and of their formation that have been found previously [2] are fully observed.

TABLE 1

Time of collection (1972)	Phases of development	Plant organ	Combined alkaloids, %	Main alkaloids, % of the total alkaloids		
				hyoscyamine	scopolamine	6-hydroxyhyoscyamine
25.IV	Vigorous growth	Epigeal part	0,78	73,7	2,4	5,1
		Roots	0,81	74,3	7,7	5,6
29.IV	Budding	Epigeal part	0,73	67,8	4,7	4,0
		Roots	0,90	73,3	6,1	6,8
5.V	Flowering	Epigeal part	0,54	65,1	5,4	2,9
		Roots	1,21	72,0	4,7	7,8
27.V	Mass fruit-bearing	Epigeal part	0,30	63,6	7,0	1,9
		Roots	1,40	70,2	3,1	9,0
22.VI	End of vegetation (withering of the epigeal part)	Epigeal part	0,10	60,5	8,0	1,2
		Roots	1,45	68,1	2,0	10,2
		Seeds	0,25	60,0	20,0	6,0

LITERATURE CITED

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