

Berberis ALKALOIDS.

XXX. DYNAMICS OF THE ACCUMULATION OF THE ALKALOIDS OF *Berberis integerrima* AND *B. nummularia*

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*Berberis integerrima* Bge and *B. nummularia* Bge — ramose prickly bushes with a height of about 4 m — grow in Central Asia and are widely distributed in the territory of Uzbekistan [1].

In folk medicine, the roots, branches, leaves and fruit of these plants are used for the treatment of cardiovascular, gastro-intestinal, and psychic diseases and in cases of rheumatism and fractures [1]. A decoction of the roots, the bark of the stems, and the leaves possesses hemostatic properties, while the fruit decreases the coagulability of the blood [2]. A number of isoquinoline alkaloids have previously been isolated from the roots and epigeal parts of these plants [3, 4]. Depending on the growth site and vegetation period, the amount of the main alkaloid — berberine — in the roots of *B. integerrima*, and *B. nummularia* ranges from 0.17 to 0.9% [3, 5].

We have studied the dynamics of the accumulation of alkaloids in the epigeal parts of these plants gathered in Fergana province (Sarikurgan) in the flowering and the fruit-ripening periods (Table 1). The main alkaloids of young shoots of both plants were berberine, magnoflorine, and oxyacanthine. The largest amount of berberine was present in young shoots of *B. nummularia* in the flowering period. The main alkaloids of the leaves of *B. integerrima* and of *B. nummularia* were glaucine and thalicmidine. The latter was the main alkaloid of the flowers of both plants. The level of magnoflorine in *B. nummularia* in both periods was less than in *B. integerrima*. It can be seen from the facts given that young shoots in the flowering period may serve as a source of berberine, and the leaves as a source of glaucine.

TABLE 1. Dynamics of the Accumulation of Alkaloids in *B. integerrima* and *B. nummularia*

Plant and phase development	Plant organ	Sum of alkaloids, %	Content of main alkaloids, %				
			berberine	oxyacanthine	magnoflorine	glaucine	thalicmidine
<i>B. integerrima</i> Flowering	Shoots	1,21	0,24	0,21	0,32	—	—
	Leaves	0,28	0,06	0,04	—	0,16	0,04
	Flowers	0,14	Tr.	0,02	—	0,01	0,10
Fruit ripening	Shoots	0,94	0,11	0,17	0,21	—	—
	Leaves	0,14	Tr.	0,01	—	0,08	Tr.
	Fruit	0,04	Tr.	0,01	—	—	—
<i>B. nummularia</i> Flowering	Shoots	1,43	0,29	0,24	0,16	—	—
	Leaves	0,32	0,06	0,02	—	0,01	0,17
	Flowers	0,16	Tr.	0,01	—	0,02	0,06
Fruit ripening	Shoots	1,11	0,17	0,11	0,14	—	—
	Leaves	0,16	Tr.	—	—	—	—
	Fruit	0,08	Tr.	0,02	—	—	—

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