CONTROL OF THE PRODUCTION OF FRUTICIN

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The sedative preparation fruticin is produced from the seeds of the shrubby plant Amorpha fruticosa [1]. We have developed a method for the control of the production of fruticin during the stages of the industrial process in the extracts, the technical product, and the mother solutions.

The quantitative determination of fruticin is based on the spectrophotometric method described previously [2], but for a clear chromatographic separation of fruticin from the substances accompanying it in the extract we have used a different system of solvents: chloroform–methanol–water (65 : 35 : 7).

An amount of solution corresponding in each individual case to the concentration of fruticin in the sample to be analyzed is deposited on a glass chromatographic plate (21 × 25 cm) in such a way that the amount of fruticin is within the limits of sensitivity of the determination.

The dynamics of the extraction of fruticin was studied on ground A. fruticosa seeds using as extractant dichloroethane–ethanol (1 : 1 by volume) (Table 1).

The amount of fruticin extracted in six extractions was 1.2% of the weight of the raw material (92.3% of its amount in the seeds).

The results of a quantitative determination of fruticin in the various stages of the reduction process are shown in Table 2.

TABLE 1. Indices of the Dynamics of the Extraction of Fruticin

Extract	Amt. of extract deposited on chromatogram, ml	Amt. of fruticin in the extracts, %	
		on wt. of the raw material	on amt. of fruticin in the extract
1	0,5	0,47	39,2
2		0,36	30,0
3		0,21	17,5
4		0,10	8,3
5	1,4	0,04	3,3
6	1,5	0,02	1,7

TABLE 2. Distribution of Fruticin over the Stages of Production

Stage of the production process	Amt. of extract deposited on chromatogram, ml	Fruticin content, %	
		on wt. of the raw material	on amt. of fruticin in the seeds
A. fruticosa seeds	0,5	1,30	100
Extract	0,2	1,20	92,3
Extracted meal	1,5	0,1	7,6
Technical product	0,5	0,77	59,2
Dichloroethane-ethanol mother solution after the separation of the technical product	0,5	0,40	30,7
Fruticin recryst. from ethanol	0,5	0,758	58,3
Ethanolic mother solution	1	0,004	0,3
Fruticin recryst. from water	0,5	0,737	56,7
Aqueous mother solution	1	0,014	1

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Thus, a method for the control of the production process for fruticin from A. fruticosa seeds has been developed, the dynamics of its extraction from the ground raw material has been investigated, and the distribution and losses of fruticin in the various stages of treatment have been determined.

LITERATURE CITED

1. F. R. Kadyrova, M.-R. I. Shamsutdinov, and T. T. Shakirov, Khim. Prirodn. Soedin., No. 1 (1973).
2. A. U. Kasymov, G. L. Genkina, E. S. Kondratenko, and N. K. Abubakirov, Farmatsiya, No. 3, 25 (1971).