

RESEARCH ELEMENTAL COMPOSITION OF DOMESTIC RAW ACORUS CALAMUS RHIZOMES

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Introduction. Minerals are essential for the human body. Work of virtually all regulatory systems somehow depends on the balance of inorganic elements that are part of cells and tissues. They come with food, water and air, and then absorbed by the body and distributed in the tissues and are included in the metabolic processes. Micro- and macro elements are an important catalyst for various biochemical reactions are part of many enzymes, hormones, to specialized proteins.

Aim. Explore the accumulation of macro and micronutrients in acorus calamus rhizomes, harvested in Ukraine.

Materials and methods. The samples acorus calamus rhizomes collected in Kharkiv (Series №1 and 6), Sumy (Series №2), Poltava (Series №3), Kyiv (Series №4), Chernihiv (Series №5) and Zhytomyr (Series №7) regions to study. Definition of quality and quantitative content macro and micronutrients conducted by atomic emission spectral analysis.

Results and discussion. The content of heavy metals in the studied raw materials does not exceed the maximum permissible limits with the exception of lead (see. Table.). In the raw materials of Kyiv, Chernihiv and Kharkiv regions this substance accumulated in large amounts (0.76, 0.84 and 0.80 mg/100g, respectively). Raw harvested near Pechenehskoho reservoir and Sumy region of lead contained at 0.08 mg/100g and 0.49 mg/100g respectively. Among the elements iron and manganese accumulate in large quantities then other. Since the raw material collected in Kyiv, Zhytomyr, Kharkiv (m. Kupiansk) and Chernihiv regions contained iron in large amounts (45 mg/100g, 35 mg/100g, 22 mg/100g and 17 mg/100g, respectively). Magnesium in the first six series of raw materials (see. Tab.) Accumulated at the level of 1.5 - 5 mg/100g. The content of copper was virtually identical in samples of Sumy and Kharkiv regions (2.0 mg/100g and 1.9 mg/100g, respectively). Zinc accumulates in large quantities in the samples of the Kharkiv region (2.5 mg/100g), and (2.8 mg/100g). Among macro accounted for the largest number of potassium, calcium, phosphorus. Potassium contained in the sample number in the number 410mh/100g, sample №5 - 1960 mg/100g. Calcium ranged from - 125-335 mg/100g, phosphorus - 87-270 mg/100g.

Table

Accumulation of elemental in samples of acorus calamus rhizomes

	mg/100g						
	№1	№2	№3	№4	№5	№6	№7
Na	16	40	13	75	110	110	140
Mg	10	60	22	95	110	67	210
Al	1	12	0.45	19	5.6	14	70
Si	12	40	9	150	28	56	280
P	175	140	270	195	190	95	87
K	410	1230	450	1330	1960	1680	1050
Ca	125	245	135	230	335	280	260
Mn	1.4	1.6	2	4.7	2.8	4.2	17.5
Fe	0.3	6,1	0.2	45	17	22	35
Ni	<0.03	0.04	<0.03	0.04	<0.03	<0.03	<0.03
Cu	0.2	2.0	0.1	0.9	0.4	1.9	0.35
Zn	2.5	2.0	0.45	0.9	1.7	2.8	1.7
Pb	0.08	0.49	<0.03	0.76	0.84	0.8	<0.03
Mo	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03

Remarks. Co < 0.03 mg/100g; Cd < 0.01 mg/100g; As < 0.01 mg/100g; Hg < 0.01 mg/100g.

Conclusions.

1. For the first time a comparative analysis of the accumulation of macro- and microelements in the rhizomes acorus calamus harvested in Ukraine depending on growth.

2. The data will be included in the standardization of raw materials, development of quality control methods and recommendations on the procurement of raw materials.