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## SECOND INTERNATIONAL CONFERENCE «INTEGRATION NETWORK OF THE PHARMACEUTICAL ECOLOGY - 2024»

### The issue of the variability of biologically active substances in fermented granulated amaranth herb

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**Speaker: Dambinova Anna**

Objects of research: samples of granulated amaranth herb produced by "SPA Nikolskaya Biofactory", Republic of Belarus: variety "Voronezhskiy" - TM "SVETOZAR" (*Amaranthus hypochondriacus* L.), grown in Belarus in the Krupsky district, and variety "Valentina" - TM "LEAVES HERBS" (*Amaranthus tricolor* L.), grown in the Kursk region of the Russian Federation.

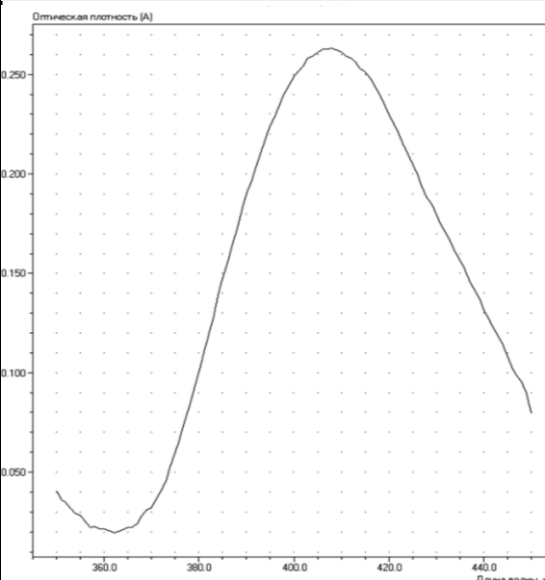


Using generally accepted qualitative reactions, the presence of flavonoids, polysaccharides, tannins, amino acids, and ascorbic acid has been confirmed. The determination of humidity and BAS content was carried out according to the methods of the State Pharmacopoeia of the Russian Federation XV. The determination of the amount of free amino acids was carried out spectrophotometrically after the reaction of complexation with ninhydrin. The antioxidant activity was determined spectrophotometrically after the reaction of inhibition of the free radical 2,2-diphenyl-1-picrylhydrazyl (DPPH).

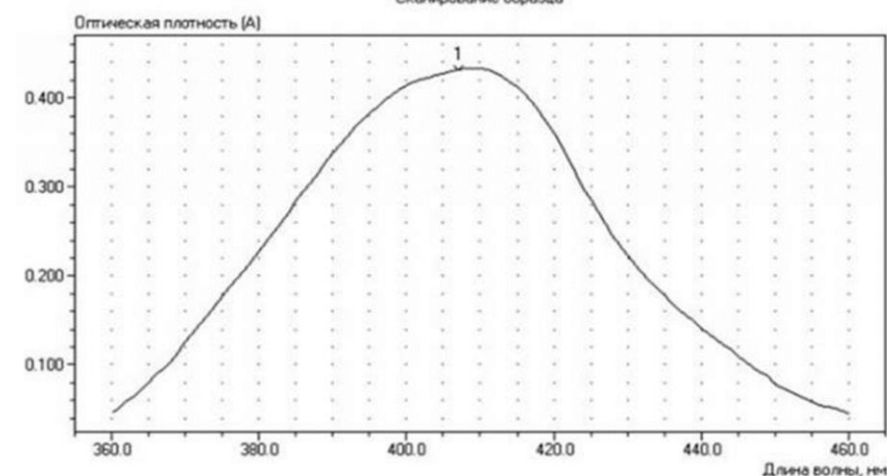


Humidity and biologically active substances	The contents, % (P=0,95, t(0,95;4)=2,78, n=5)	
	Variety «Voronezhskiy»	Variety «Valentina»
Humidity	6,97±0,06	6,88±0,11
Polysaccharides	17,45±0,81	18,42±0,85
Tannins in terms of tannin	0,180±0,005	0,950±0,046
The amount of flavonoids in terms of rutin	0,411±0,020	0,240±0,008
Ascorbic acid	13,2±0,6 mg%	14,1±0,4 mg%
The amount of free amino acids in terms of glutamic acid	2,66±0,11	1,17±0,03
Antioxidant activity: IC50% DPPH	1,15±0,01 µg/ml in terms of rutin	2,03±0,01 µg/ml in terms of rutin

Absorption spectrum of water-alcohol extraction (70% alcohol) of the sorrowful amaranth herb variety "Voronezhsky" after the reaction of complexation with aluminum chloride



Absorption spectrum of the rutin complex with aluminum chloride



Conclusions: The results of studying samples of granulated fermented amaranth herb of different varieties (and botanical species) showed that the dominant BAS are polysaccharides that have a positive effect on the immune system and microbiota of the human gastrointestinal tract; fermented granulated amaranth herb has high antioxidant activity due to the complex of BAS, and not only phenolic compounds.