THE METABOLOMIC APPROACH TO THE INVESTIGATION OF THE VIR COLLECTION OF GENETIC RESOURCES

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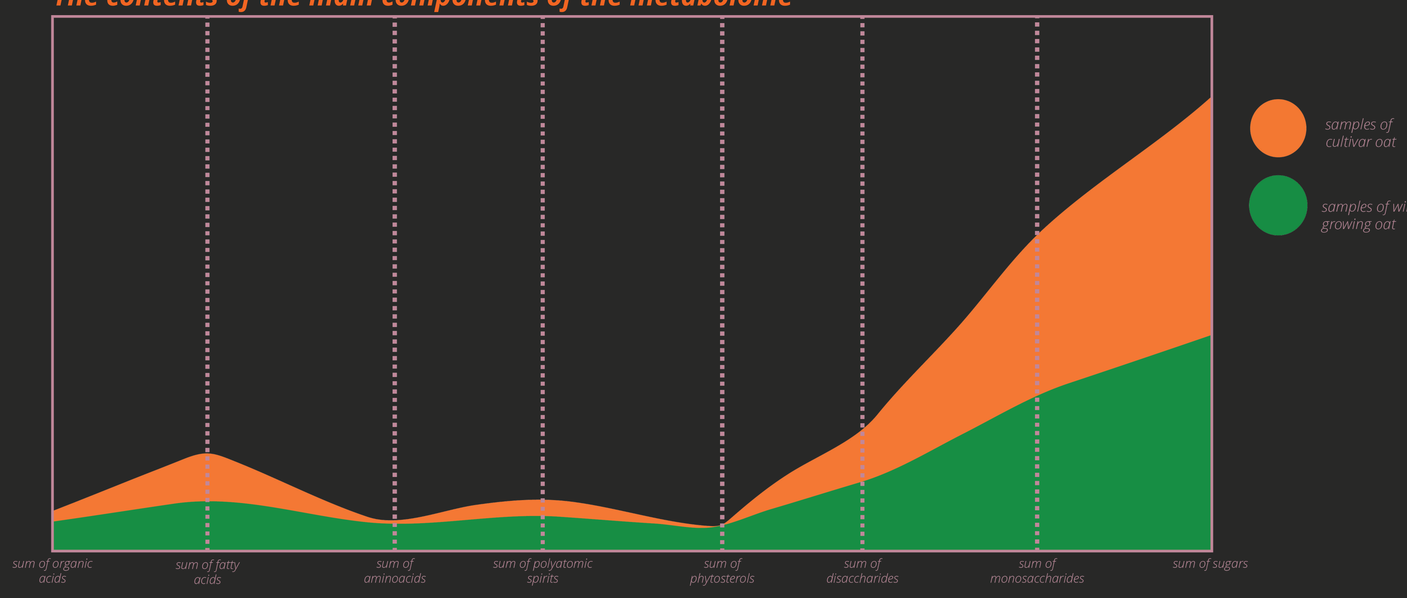
The total content of the major groups of biochemical parameters of grain samples of cultural oats

varieties	total content, mg/100 g						
	organic acids	fatty acids	amino acids	polyatomic spirits	sterols	monosaccharides	disaccharides
borrus	45,6	600,4	57,1	105,3	6,9	925,5	1573,6
argamak	45,8	405,1	76,8	193,1	12,3	700,1	2400,1
numbat	57,6	532,0	88,0	189,8	10,3	589,4	2303,9
belinda	48,1	511,3	44,7	172,4	19,4	721,6	2391,7
vjatski	49,0	590,3	112,2	241,9	16,5	1477,0	2175,7
gehl	52,1	514,5	88,3	267,5	15,9	1458,5	1112,1
KSI 731/01	46,8	439,8	85,7	190,5	16,3	700,1	2357,7
hurdal	38,3	416,3	41,6	159,4	15,1	792,8	3254,3
zalp	46,5	452,6	76,5	209,2	29,1	896,8	3265,1
sapsan	68,8	477,7	87,1	169,5	22,0	738,7	2779,7

The total content of the major groups of biochemical parameters of grain samples of wild species of oats

species	total content, mg/100 g							
	total organic acids	total fatty acids	total amino acids	total polyatomic spirits	total sterols	total monosaccharides	total disaccharides	total sugar
a. atlantica	116,5	275,3	54,4	507,5	0	1179,8	541,7	1721,4
a. canariensis	67,3	705,1	22,6	278,7	19,9	1752,2	46,01,5	6353,7
a. clauda	99,6	1058,8	61,3	370,3	7,4	1194,6	6943,7	8138,3
a. hirtula	159,2	1000,3	50,6	338,2	23,3	1005,9	3450,3	4456,3
a. wiestii	163,2	433,6	142,2	248,5	11	698,4	379	1077,3
a. agadiriana	167,4	1040,6	45,8	342,4	25	1429,5	1588	3017,5
a. insularis	115,7	656,1	41,1	171,3	25,7	329,8	7424,2	7754,1
a. magna	37,1	412	19,3	91,7	13,5	358,3	4979,1	5337,4
a. fatua	71,5	725,5	27,8	239,4	29,5	1971,4	859,5	2830,9
a. ludoviciana	51,6	548	15,2	188,1	13,3	764,3	752	1516,3
a. occidentalis	171	1633,4	41,7	445,8	30,3	1013,9	1665,3	2679,3
a. sterilis	141	1019,1	36,9	375,2	32,6	1119,9	2516,7	3636,6

The contents of the main components of the metabolome



Metabolomic profiles have been investigated in some crops, including wild and cultivated forms (cultivars) of oat (Avena L.), with feed and food value from the VIR collection. Metabolome analysis employed gas liquid chromatography-mass spectrometry (GLC-MS) using an Agilent 6850 chromatographer (USA).
Metabolites (compounds) have been identified, whose content changes in the process of "domestication" or which make wild oat species different from cultivated varieties. Oat collection of the Vavilov Institute — a valuable source of forms and carriers of quality traits in a wide range of their expression — serves as a reliable base for the development of varieties which meet the modern requirements of food industry, feed production, healthy and clinical nutrition, etc.