



POSSIBLE STUDIES ON THE BERRIES OF SOME BLACKCURRANT VARIETIES ONE YEAR AFTER PLANTING IN THE CENTRAL PART OF THE REPUBLIC OF MOLDOVA

Natalia Bulgac, Parascovia Sava



Introduction

Currants are an important nutritious food for humans.

Fresh blackcurrant berries contain high amounts of vitamin C (up to 300 mg/100 g), which is necessary for the body to strengthen immunity and fight inflammatory diseases.

In overripe berries, even remaining on the bush, the amount of vitamin C decreases. And 2 weeks after ripening, its amount in berries decreases by almost 70%.

This article presents some research done on blackcurrant berries in the summer of 2024. Analyses were made in order to substantiate what the berries of the first harvest contain and how the physicochemical composition of the berries changes.

The aim of the work was to carry out a possible physical and chemical composition of blackcurrant plant varieties after the first year of planting. Samples for the study of analysis were taken one week apart. The data were processed in terms of vitamin C in mg/100 g, phenolic substances in mg/100 g, percentage of dry matter, percentage of sugar, percentage of titratable acids, seed size and weight.



Materials and methods

Research on the development and fruiting of currant plants was carried out in the experimental plantation located in the central part of the Republic of Moldova, Ungheni district, Todirești village (Cidonia SRL), established in the spring of 2023. The study included the varieties: Titania (control), Tiben, Tisel and red currant, which were planted according to the approved methods within the framework of research conducted in the laboratory Fruit Trees and Strawberries, Scientific and Practical Institute of Horticulture and Food Technologies and Doctoral Project, Technical University of Moldova. All the results presented in the paper on the assessment of the quality of blackcurrant and redcurrant berries were carried out during the vegetation period of 2024. The data obtained as a result of the research were statistically processed, which allowed for the first characterization of black and red currant berries.



Results and discussions



Titania



Tiben



Tisel



Red currant

The dates of the beginning and end of blackcurrant berry ripening were determined visually.

By 19.05.2024, the ripening of berries in the Tiben variety was 90-95%, while in the Tisel variety only some grains started to change colour.

Due to abnormally hot weather, berry ripening was fast this year.

The period from the beginning of ripening to full ripening of grains in the variety Tiben was 15 days, in the variety Tisel - 29 days, and in the variety Titania - 20 days.

Also in the spring of 2023, red currant was planted in the experimental plot and studies were conducted on it as well.



Results and discussions



On 06.06.2024, samples were taken from each variety for analysis, 100 grains were taken from each sample and weighed. Titania berries were the heaviest, weighing 76 g, and Tisel berries were the lightest, weighing 67 g



Results and discussions

Table 1. Size and weight of berries

Blackcurrant varieties	Weight of 100 beans, g	Berry diameter, mm
Titania variety	76	0,8 – 1,4
Tiben variety	71	0,6 – 1,3
Tisel variety	67	0,7 – 1,3
Redcurrant	53	0,5 – 1,3

The diameter of the largest and smallest grains of each variety was measured. The largest grains were in the Titania variety - 1.4 mm. The smallest difference between grain sizes was in Titania variety 0.8 to 1.4 mm, in Tisel variety 0.7 to 1.3 mm, and in Tiben variety 0.6 to 1.3 mm. Redcurrant has the largest difference between grains 0.5 - 1.3 mm.





Results and discussions

Table 2. Determination of physico-chemical quality indices in black and red

Name of currant variety	Dry substances, %	Sugars, %	Titratable acids, %	Vitamin C, mg /100g	Phenolic substances, mg/100g
First sample					
Titania	15,46	11,92	2,85	140	280,0
Tiben	16,21	12,55	2,92	120	269,0
Tisel	16,35	12,87	2,54	250	355,0
Redcurrant	15,38	10,84	3,12	210	194,0
Second sample					
Titania	15,62	12,34	2,74	155	321,0
Tiben	16,49	12,87	2,81	138	285,0
Tisel	16,57	13,00	2,48	268	377,0

Two samples were collected to determine the physico-chemical quality parameters of black and red currants. The first sample was collected on 06.06.2024 and submitted for processing one week later. The second sample was collected on 21.06.2024 and given for processing on the same day. The results of the study revealed that Tisel variety was superior to other studied varieties in dry matter, sugar, vitamin C and phenolic compounds in the two samples but inferior in titratable acids.

Results and discussions

Table 3. The difference between the samples

Name of currant variety	Dry substances, %	Sugars, %	Titrateable acids, %	Vitamin C, mg /100g	Phenolic substances, mg/100g
Titania	0,16	0,42	-0,11	15	41
Tiben	0,28	0,32	-0,11	18	16
Tisel	0,22	0,13	-0,06	18	22

Examining the differences between samples, it can be seen that the level of some indicators such as dry matter, sugar content, vitamin C and phenolic substances decreased in all varieties after one week of berry storage.



Conclusions and recommendations

The conducted studies of development terms of blackcurrant varieties allowed to establish the following:

The period from the beginning to full ripening of berries was 15 days in the variety Tiben, 29 days in the variety Ticel and 20 days in the variety Titania.

The heaviest berries were in the Titania variety, weighing 76g for 100 grains, while the lightest berries were in the Tisel variety weighing 67g.

Tisel variety surpasses other studied varieties in dry matter - 16.57%, sugar - 13%, vitamin C - 268 mg/100 g and phenolic compounds - 377 mg/100 g, but is inferior in titratable acids. The only parameter that was higher in all varieties after one week was titratable acid. Tisela had a 0.06 % increase in titratable acid, while Titania and Tiben had a 0.11 % increase in titratable acid.

Blackcurrants are worth growing in the central zone of Moldova, as they produce large amounts of vitamin C.



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Thank you for your attention!

Natalia BULGAC

Mobil: 069883003

E-mail: bulgacnatalia@gmail.com

Address: Technical University of Moldova, Block 1, Bulevardul Ștefan cel Mare și Sfânt 168, MD-2004, Chișinău

Parascovia SAVA

Mobil: 069801776

E-mail: psava2110@gmail.com

Address: Scientific and Practical Institute of Horticulture and Food Technologies, Vieru 59, MD-2070, Chișinău



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