

The Influence of the Timing of Sowing Turnip Salad on the Biochemical Composition

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ABSTRACT

The article highlights the problems of providing the population with healthy food. In particular, the biochemical composition of turnip and turnip salad is revealed, the difference in the indicators of the presence of sugar, vitamin C and other useful substances in them, so necessary for a person, is shown.

KEYWORDS: *turnip salad, simple turnip, biochemical composition, leaf, roots*

INTRODUCTION

Currently, the main urgent problem is the organization of healthy nutrition for the population of our country and an increase in the range of products. And at such a time, the introduction into the republic from the countries of Southeast Asia of turnip salad, which has national economic importance, was carried out, as well as the study of the biochemical composition of these crops, which is one of the important tasks of today.

Turnip salad is considered a dietary product. Not only its roots are used, but also the leaves. The plant is rich in ferments, trace elements, minerals and vitamins, its leaves are thin, delicate and rich in carotene, vitamin C. In addition, it contains PP, B₁, B₂, calcium, phosphorus, sodium, iron and other minerals. In ancient times, due to a large amount of calcium in it, the poor families used it as a special agent for the prevention of blood diseases, bones and rickets. The largest amount of potassium (400 mg/100g) and calcium (49 mg/100g) in the turnip salad.

In the countries of Southeast Asia and especially in Japan, this plant is looked at as the main source of vitamin C and carotene. The state has taken control of its cultivation [2; 303 pages]. But in the literature, there is no information on the biochemical composition of not only turnip salad, but also simple turnips in the conditions of Uzbekistan.

Therefore, for the first time in Uzbekistan, biochemical analysis of turnip leaves and its roots was carried out. The analysis of the biochemical composition was carried out at the Tashkent Chemical-Technological Laboratory under the State Commission for Testing Agricultural Plant Varieties, together with the supervisor of L.I. Lemeshkin.

MATERIALS AND METHODS

The experiments were conducted in the experimental fields of the Research Institute of Vegetable, melon crops and potato. The institute is located in Zangiota district of

Tashkent region. The climate of this place is slightly different from the climate of most vegetable farms located in the irrigated plains of the country.

Its distinctive feature is that there is enough light and heat, continental variable and dry air. The duration of sunlight is 2700–3000 hours per year, with summer sunlight 360–400 hours per month and 90–130 hours in winter. The daily temperature fluctuations are high (10–15°C in winter and 15–20°C in summer).

RESULTS AND DISCUSSION

Tests have shown that the biochemical composition of root crops and turnip leaves is associated with the variety, the period and period of its cultivation. The biochemical composition of root crops and leaves of simple varieties of turnip and turnip salad, planted in spring at different times under a film, was studied.

From the analysis of the information obtained, the following conclusion was made: turnip leaves are rich in dry substances, sugar and vitamin C. It ranks second after sweet pepper in the amount of vitamin C in the leaves. If in sweet pepper the amount of vitamin C is 250 mg per 100 g, then in turnip leaves this figure is 125,4–186,5 mg per 100 g. Vitamin C in turnip leaf is 5,0–7,5 times more than in tomato, 12,5–18,6 times more than in cucumber, 4,1–6,2 times more than in carrots.

Biochemical analysis of turnip leaves planted in spring at different times revealed the following: in the first control variant in the variety Namangan mestnyi of dry matter 9,6%, and in variety Muyassar this figure is 10,4%. This means that this indicator in relation to the control variety is 108,3% higher. The indicator of the amount of sugar in the control variety was 6,5%, and in the Muyassar variety – 6,8%. This is 104,6% higher compared to the control variety. But the amount of vitamin C in the Muyassar turnip cultivar is 61,1 mg% less than in the control variety.

According to the sowing dates of both turnip varieties, from the first term to the sixth term, a decrease in the amount of biochemical substances in the leaf was observed. In our opinion, the reason for this is that the plant period falls on hot days. As you know, turnip is a cool, cold-resistant plant. For its growth and development, the optimal temperature is 15–18°C. As the temperature rises, the leaves coarsen, shrink and lag behind in development. All this, of course, affects the biochemical composition. The biochemical composition of the root crops of simple turnip and turnip salad sown under

the film in spring at different sowing dates is shown in Table 1. From the information given in the table-1, it can be seen that the biochemical composition of the Namangan mestniy turnip improves from the first term. If in the first term the amount of dry matter was 3,8%, then in the sixth term this figure was 8,2%, which is 115,8% more in relation to the first term. The same situation was observed in terms of the amount of sugar and vitamin C.

We believe that the variety Namangan mestniy has adapted well to local conditions.

In the turnip variety Muyassar, on the contrary, there was a decrease in the biochemical composition of root crops from the first term to the sixth. For example, the amount of dry matter in the first term was 9,6%, and by the sixth term it decreased by 4%.

Similarly, there was a decrease in the amount of sugar by 1,2%, vitamin C by 3,7%. In the first three terms, that is, in the winter months, the biochemical composition of the root turnip salad was very good, especially the dry matter (97,6-152,6%), sugar (70,0-77,8%) higher than in the control variety, vitamin C in relation to the control variant was less by 4,6-5,0%. From the fourth term, a decrease in the number of dry substances and sugar in root crops was observed. And the amount of vitamin C in the fourth and fifth stages was higher, in the fifth period it sharply decreased. There was a high amount of sugar, dry matter and vitamin C in the leaf of the turnip plant during the summer sowing period than when sowing in the spring.

Table-1 Biochemical composition of the root vegetables of simple turnip and turnip salad, sown in spring under the film (2011-2013)

№	Sowing dates	Dry matter %	Relative to the control variety, %	Amount of sugar, %	Relative to the control variety, %	Vitamin C, мг/%	Relative to the control variety, %
Namangan mestniy (control)							
1	1-февраль	3,8	100	1,8	100	31,2	100
2	10-февраль	4,1	100	1,8	100	32,1	100
3	20-февраль	4,2	100	1,7	100	33,1	100
4	2-март	4,6	100	2,8	100	33,3	100
5	10-март	7,7	100	4,1	100	35,1	100
6	20-март	8,2	100	3,6	100	48,9	100
	В среднем	5,4		2,6		35,6	
Muyassar variety							
1	1-февраль	9,6	252,6	3,2	177,8	28,9	92,6
2	10-февраль	9,4	229,3	3,1	172,2	30,5	95,0
3	20-февраль	8,3	197,6	2,9	170,6	32,8	99,1
4	2-март	6,3	137,0	2,7	96,4	34,8	104,5
5	10-март	8,2	106,5	3,6	87,8	41,1	117,1
6	20-март	5,6	68,3	2,0	55,6	25,2	51,5
	В среднем	9,6		2,9		32,2	

So, if the amount of dry matter in the variety Namangan mestniy, sown in the spring sowing period, was 7,8-9,2%, then during the summer sowing period this figure was 9,9-10,3%. In the Muyassar variety, this indicator is respectively 8, 3-10,5% and 11,2-12,1%.

The indicator of the amount of sugar is 5,7% in spring and 6,7% in summer sowing. The same condition was observed in terms of vitamin C.

Summer sowing dates did not have a strong effect on the biochemical composition of the turnip leaf. For example, the dry matter index of the Muyassar variety was about 11,2-12,1% in terms of sowing time, the sugar content was 7,6-7,9%, but from the first term to the fourth, the biochemical quality indicators of the root crop in two varieties were high.

In the variety Namangan mestniy, sown on August 30, the amount of dry matter was 9.7%, and in the Muyassar variety - 6.4%. This is 1.0-0.7% higher in relation to the control

variant, the amount of sugar in the Namangan mestniy was 5.69%, in the Muyassar variety 2.36%. This is 0.63-0.30% higher than the control variant. Vitamin C in the Namangan mestniy was 43.2 mg%, in the Muyassar variety 33.0 mg%. This relative to the control option is higher by 8.1-16.4%.

CONCLUSION

As our studies have shown, the summer sowing time has an effect on the biochemical composition of the plant turnip salad and simple turnip. Growing turnip salad in large quantities contributes to the transformation of turnips into one of the sources of vitamin C in our republic.

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