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Web: www.cids.org.mk
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Editor's Note

It is with great pleasure that I bring to you the fourth volume of the Journal of Balkan and European Perspectives (JBEP). This edition covers variety of actual topics that are at the forefront of current discussions among policy makers, and academia and we hope that you will find it as enlightening as we do.

The objective of the JBEP is publishing original, up-to-date, high-quality and research papers thus aspires to be vibrant, engaging and accessible, for the intriguing community. I believe that by working together we can make a significant impact on the future direction of our journals but also of the academic thought in any respective field. And as you will see, the contributions in this volume are wonderful examples of knowledge that comes about through collaboration and dialogue. I welcome you to contribute, through comments and critique, and as future writers.

Best wishes and thank you in advance for your contribution to the Journal of Balkan and European Perspective.

Best regards,
Prof. Mitko Kotovchevski, PhD
Editor-in –Chief
Journal of Balkan and European Perspectives
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Dear readers,

It is an honor and a privilege for me to address in the role of Deputy Editor-in-Chief of *the Journal of European and Balkan Perspective (JEBP). The Journal* within a short period of time is evolving into a very successful Journal in providing an opportunity to present and discuss in a wide range of critical issues and knowledge not only within the national academic community but also in the global scientific and expert community. The Journal positioning emanates from the vision of the founding members to create an international and interdisciplinary forum to foster academic debate across the various actual fields concerned with the European and Balkan perspective's issues but also wider.

From thence, I am delighted to present to you the fourth volume of the *JEBP*. It offers a selection of papers addressing very hot topics today. For example, the cultural diplomacy is an absolutely crucial platform for conflict resolutions and building bridges over troubled waters, especially in the Former Yugoslavia. The question of nation and nationalism yet in the 21st century creates tensions and as such is among the most pressing problems of contemporary political theory. Of great interest for academic debate is the issue of elderly persons' vulnerability to crime, topic addressed hereby. According to the recent researches this population is more vulnerable to crime than other age groups mainly due to the physical and mental weaknesses of the old age, contributing to the visibility of a potential victim.

I look forward to sharing this volume with you – and to fostering the possibilities for research connections and cooperation within the scholars worldwide. I am convinced that this Journal will attract the interest of broader variety of scholars and will ensure that all the quality articles published in this issue will reach the diverse, knowledgeable, and global readership that they deserve.

With regards,
Prof. Jana Kukeska, PhD
Deputy Editor-in-Chief
Journal of Balkan and European Perspectives

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This Issue's Special: Modern Balkan Approach to the Bio-Natural Science

CONTENT OF VITAMIN "C" IN CAULIFLOWER (BRASSICA OLERACA VAR. BOTRYTIS) AND BROCCOLI (BRASSICA OLERACA VAR. ITALICA) GROWN USING MICROBIAL FERTILIZERS

Daniela Dimovska
University Goce Delcev-Stip
PetarPetrov
MIT University Skopje
Igor Iljovski
University St. Kiril and Methody, Skopje, Faculty of agriculture science and food

Abstract
The experiment was conducted in order to determine the influence of the microbiological fertilizer Slavol on vitamin C in broccoli and cauliflower that were produced at the open field.
It was used the cauliflower Barcelona F1 and broccoli variety Verdija F1, which was grown in the Skopje region for three years (2011, 2012, 2013). The treatments were as follows: Ø control - without the use of microbiological fertilizer, T-1 - foliar treatment every 7 days with 0,1% solution of Slavol and T-2 - drip irrigation treatment every 2 days with 0,1% solution of Slavol. Was follow level on vitamin C in cauliflower and broccoli.
According to the obtained results it can be established that with the use of microbiological fertilizer Slavol the higher level on vitamin C in cauliflower was in treatment T-1 was 56.16 mg/100g , but in broccoli was higher level on vitamin C in the treatment T-2, or 43,6 mg/100g.
A statistically significant difference in $p < 0.05$ levels was found only in broccoli between treatment 2 and the highest mean value of 43.63 of vitamin C in mg / 100 g and T-1 treatment.
Keywords: cauliflower, broccoli, microbiological fertilizer, vitamin C.

Introduction

Vitamins are organic compounds with a diverse structure and chemical properties that are essential in human nutrition. Fresh fruits and vegetables are a rich source of vitamins. Vitamin C is one of the main antioxidants, and its function is to release molecules of free radicals and microbes from the body. It has a significant role in the development and regeneration of tissues, blood vessels, bones, as well as improving immunity, resistance to viruses and bacteria, allergies, airway diseases, etc. Ascorbic acid is a ketolactone with six carbon atoms that according to the structure is very similar to glucose. It is easily soluble in water and alcohol, and practically insoluble in chloroform and ether, it is unstable and easily loses its storage and packaging properties. It is subjected to oxidation by alkalis, iron and copper.
Cauliflower (Brassica oleraca var. Botrytis) and broccoli (Brassica oleraca var. Italica.) Belong to the group of leafy green vegetables from the cabbage family BrassicaceaeL. Which are characterized by high nutritional value and medicinal properties due to their chemical composition. vitamins, minerals, proteins, carbohydrates and fats. They are also rich in amino acids (arginine, histidine, methionine, tryptophan, lysine, etc.) that help the kidneys work, secrete gastric juices, and thus digest food. Some plant derivatives that contain cabbage crops (cabbage, cauliflower, broccoli, kale) prevent the development of tumors, so science calls them anticancer substances. According to Alajaykov (1966), the content of vitamin C in cauliflower ranges from 59.6-69.4 mg / 100 g, and according to data provided by Červenski and Gvozdenović (2007), broccoli contains the highest amount of vitamin C of all cabbage. cultures, the content of vitamin C according to

them is 89.2 mg / 100 g. In addition, cauliflower and broccoli have a pleasant and refreshing taste, can be consumed prepared in different ways and in a processed state, which is why raw materials are valued in households and industry throughout the year.
The aim of our study was to determine the effect of Slavol microbiological fertilizer on the content of vitamin C in cauliflower and broccoli. Worthington (2001) found that organically produced vegetables have higher levels of vitamin C, iron, magnesium and phosphorus, and less nitrates and lower amounts of some heavy metals.

Material and method of work
The experiment was conducted in the vicinity of Skopje, Jurumleri, on soil type alluvium, during the vegetation years 2011, 2012 and 2013.
The subject of the examination is two cultures:
- Cauliflower (Brassica oleracea L. var. botrytis), Barcelona F1 variety;
- Broccoli (Brassica oleracea L. var italica), variety Verdija F1.
Cauliflower and broccoli were grown by producing seedlings in cold beds, from where the seedlings were planted in the field, ie outdoors.

Table 1. Time of sowing and transplanting of cauliflower and broccoli sowing seeds

Variety	Year	Sowing	Sprouting 50 %	Transplanting
Cauliflower				
Barcelona F1	2011	20.05	27.05	16.07
	2012	20.05	26.05	16.07
	2013	25.05	01.06	17.07
Broccoli				
Verdija F1	2011	20.05	27.05	16.07
	2012	20.05.	26.05	16.07
	2013	25.05	01.06	17.07

Seedlings in the three years of examination were produced by sowing in seedlings intended for seedling production. During 2011 and 2012 the sowing was done on May 20, while in 2013 the sowing was done on May 25.
50% seed germination is observed in the period from 5 to 7 days after sowing.
Prior to the installation of the Polish experiments, standard agro-technical measures preceded: plowing, fertilizing with burnt manure, plowing and plowing to prepare the soil for planting broccoli and cauliflower seedlings in a permanent place.
Both crops are planted on experimental plots, arranged in a random block system (Fisher method) in three variants, with four repetitions each. The plants are planted at a distance of 0.5 m in a row and 0.8 m between rows.
The treatments are based on the time and method of treatment with the Slavole microbiological fertilizer, which combines 6 bacteria belonging to the group of free azotobacter chrococcum (108 cfu / ml) Azotobacter vinelandii (108 cfxia / ml). 108 cfu / ml) and phosphomineralizers (Bacillus licheniformis (109 cfu / ml), Bacillus suptilis (109 cfu / ml), Bacillus megaterium (109 cfu / ml), a product of Agrounik, R. Serbia. For this purpose, three variants were placed:
1. Ø control - without the application of microbial fertilizer;

2. Treatment 1 (T-1) - treatment of seedlings by immersion in a solution of 5 l of water and 50 ml Blade and treatment during vegetation through the leaves with a back spray every 7 days with a solution of 2 ml of mortar dissolved in 2 l water and
3. Treatment 2 (T-2) - treatment of the seedling by immersion in a solution of 5l water and 50 ml Slavool and treatment during vegetation through a drip system (spaghetti type) with a solution of 150 ml Slavo, dissolved in 150 l water with a flood rate of 2 L / m2 per capita, every two days
The irrigation rate in all examination treatments is equal, with a drip system.

Table 2. Foliar treatments

Year	July			August					September			
2011	19	26		2	9	16	23		6	13		
2012	21	28		4	11	18	25		1	8	15	22
2013	20	27		3	10	17	24	31	7	14	21	

Table 3. Drip treatment system

Year	July				August					September				
2011	25	27	29	31	2	4	6	8	10	1	3	5	7	9
					12	14	16	18	20	11	13	15	17	
					22	24	26	28	30					
2012	18	20	22	24	1	3	5	7	9	2	4	6	8	10
	26	28	30		11	13	15	17	19	12	14			
					21	23	25	27	29					
					31									
2013	21	23	25	27	2	4	6	8	10	1	3	5	7	9
	29	31			12	14	16	18	20	11	13	15	17	
					22	24	26	28	30					

Results and discussion

The average vitamin C content in cauliflower inflorescences, according to Lešič et al. (2002), ranges from 35 to 87 mg / 100 g, while Vanderslicei et al. (1990), found vitamin C content in cauliflower 62.7 mg / 100 g.

Lee and Kader (2000) suggest that the content of vitamin C in vegetables is influenced by a number of factors such as: differences in genotype, climatic conditions during production, application of agrotechnical measures, maturity during harvest, harvesting and whiter practices. During vegetation, the increased intensity of light affects the increase of vitamin C in plant tissues, while the increased intake of nitrogen fertilizers in most vegetable species results in a decrease in the content of this vitamin. In many species, the content of vitamin C may increase if irrigation is less frequent.

Table 4 shows the data from the measured values for the average content of vitamin C in cauliflower by years, as well as the average values for the three years of examination in each of the treatments.

Table 4. Content of Vitamin C content in cauliflower mg / 100 g

Year	Ø	T-1	T-2
2011	54,86	62,18	50,96
2012	38,69	47,22	42,48
2013	59,86	59,09	65,42
Average	51,14	56,16	52,95
VC	21,6	14,1	21,9
LSD 0,05	10,53		
0,01	17,47		

A high variation coefficient was found in the control and treatment of T2, ranging from 14.1 to 21.9%. The analysis of variance and LSD test did not affect any level of probability between control and treatment, as well as between treatments themselves.

Based on the average values for the content of vitamin C in cauliflower, according to the three-year average, we can conclude that most vitamin C contains cauliflower inflorescences in T-1, and the least contains control. The amount of vitamin C obtained is within the limits of scientifically proven values for the presence of this vitamin in cauliflower inflorescences.

According to research by Khuranai et al. (2009), on the effect of cauliflower seedling inoculation with biofertilizers on vitamin C content, found that it has an effect and the content of this vitamin has improved. The application of Azospirillum and Azotobacter in combination with the recommended doses of mineral fertilizers, resulted in a significant improvement in the content of vitamin C, with a content of 87.57 and 87.20 mg / 100 g.

According to the data provided by Červenski and Gvozdenovitоците (2007), broccoli contains the highest amount of vitamin C of all cabbage crops, the content of vitamin C according to them is 89.2 mg /100 g, while according to Le Cič, the content of vitamin C in broccoli ranges from 83 to 125 mg / 100 g.

Vanderslicei cop. (1990) found that vitamin C content of 96.7 mg / 100 g was fresh in broccoli inflorescences, while thermally processed inflorescences contained 39.6 mg / 100 g.

The data obtained, shown in Table 5, indicate that in our studies the content of vitamin C ranged from 30.98 mg / 100 g in T-1, to 48, 21 mg / 100 g in T-2.

Table 5. Content of Vitamin C content in broccoli mg / 100 g

Year	Ø	T-1	T-2
2011	42,86	37,93	42,72
2012	37,71	30,98	39,97
2013	40,43	38,88	48,21
Average	40,33	35,93	43,63*
VC	6,4	12,0	9,6
LSD 0,05	5,05		
0,01	8,38		

The highest varicocele coefficient in the three years of research was determined by the T-1 treatment 12%, and the lowest in the control (6.4%). Analysis of variance and LSD test showed no effect on any level of probability between control and treatment. The only probability of a $p < 0.05$ level was found between treatment 2 and the highest mean value of 43.63 of vitamin C in

mg / 100 g and T-1 treatment. Three years of research on broccoli has shown that the use of 1% solution of microbial fertilizer Slavolvo quantity applied with a drip system (spaghetti type) every 7 days showed statistically significant differences with the application of microbial fertilizer water 2 foliar fertilizer with solution 2 every 7 days.
Based on the results obtained for the average content of vitamin C, it indicates that the highest content of vitamin C is in T-2 or 43.63 mg / 100 g, while the lowest of 35.93 mg / 100 g is in T-1.

Conclusion

Based on the research, we can conclude that the average content of Vitamin C in the three years of cauliflower testing has the highest value in T-1 in the treatment where microbial fertilizer is applied foliarly, while in cauliflower T-2 in the treatment where microbial fertilizer is applied. with drip system.
From what we have learned, we can conclude that the content of Vitamin C in cauliflower and broccoli not only affects the application of microbial fertilizers, but also the method of application of fertilizers.
Three years of research on broccoli has shown that the use of 1% solution of microbial fertilizer Slavol in an amount applied with a drip system (spaghetti type) every 7 days showed statistically significant differences with the application of microbial fertilizer foliar fertilizer with a solution of 2 ml Slavol, 2 l of water every 7 days.

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