

CONSUMPTION OF BERRIES BY POPULATION OF DIFFERENT AGES IN THE CENTRAL PART OF THE REPUBLIC OF MOLDOVA

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Abstract

This article presents the results of a survey of the population of the Republic of Moldova aged under 18 and over 60. The survey obtained information on the consumption of blackcurrants by the population compared to other fruits, and whether people are aware of the benefits and vitamins of blackcurrants. The survey showed that fresh strawberries are consumed the most during the season, followed by raspberries and other berries. Berries are mainly consumed in the afternoon. The most useful berries were blackcurrants and raspberries, followed by blueberries. About two-thirds of the respondents said that blackcurrants contain vitamin C, and only a few were aware of other vitamins. The population knows that eating unwashed berries can introduce ascarid eggs, pinworm eggs, giardia cysts into the body. Respondents identified the benefits of blackcurrants as improving immunity, containing vitamins, improving blood circulation, and being an antioxidant. Blackcurrants are consumed both fresh and processed. Frozen fruits are consumed most by the age group 25-40 years (69.23%) and least by the age group 41-60 years (3.38%). Jams are consumed most by the 25-40 age group (67.30%) and least by the under 18 age group (8.33%). Steeped tea made from dried leaves, twigs and berries is drunk most by respondents between 18 and 24 years of age - 13.20 per cent, and least by people over 60 years of age - 5.55 per cent.

Keywords: age group of population, berries, blackcurrants, consumption, questionnaire, vitamins.

Introduction

Today, the issue of providing the population with clean ecological products growing in the Republic of Moldova is relevant. In this regard, there is an interest in what berries are consumed by the population of different ages, what place black currant occupies among berries, what

vitamins it has and what benefits it brings to the human body. The purpose of the work was to study the collection of information on the consumption of berries by the population of different ages and knowledge about the benefits of black currants. This can be achieved with the help of questionnaires and processing of the data obtained. The object of the study was the population of different ages living in Chishinau and the village of Todireshti, Ungheni district.

With the help of the questionnaire method, it is possible to obtain a high level of mass research at the lowest cost. A feature of this method is its anonymity (the respondent's identity is not recorded, only his answers are recorded). Questioning is carried out mainly in cases when it is necessary to find out people's opinions on some issues and cover a large number of people in a short time such recommendations in the article: Questionnaire and survey (Studbook. net 2013).

Recent studies Khatko and Kolodina (2018) have confirmed that fruits and vegetables are an integral part of the human diet at any age, the benefits of which for the body can hardly be overestimated.

Black currant berries are a unique vitamin complex created by nature. Black currant berries contain many organic acids, such as malic, citric, folic acid, sugars, vitamins - C (ascorbic acid), A, P, B, pectins, anthocyanins, tannins and minerals - potassium, calcium, sodium, iron, phosphorus, magnesium these data were confirmed in the article - What is the use of black stink (2023).

The use of black currant helps to strengthen the walls of blood vessels and prevent diseases of the cardiovascular system. Coumarin thins the blood, preventing the formation of blood clots. Vitamin P increases the elasticity of blood vessels, protecting them from fragility and preventing the development of atherosclerosis, – this is what Svetlana Butova (2022) claims in her article.

Elementaree specialists claim, in order to meet the daily requirement of an adult for vitamin C, it is enough to eat only 10-15 berries (Efremov 2023).

In the article by Karomatova and Rustamova (2018) "Medicinal properties of currants" it is said that tea from currant leaves is used internally for inflammation of the bladder, kidneys, rheumatism, urolithiasis. Currant berry juice is prescribed for colds and as a vitamin remedy.

Particular attention to black currant has recently been associated with the discovery of a beneficial effect of anthocyanins of the fruits of this plant on the human visual apparatus, especially for relieving fatigue from prolonged work at the screens of modern computers, Petrova, Kuznecova (2014) proved this with their research.

Materials and Methods

The study was based on analysing the data of answers to questions comparing age characteristics. A total of 206 people of different ages, 89 men and 117 women, took part in the study.

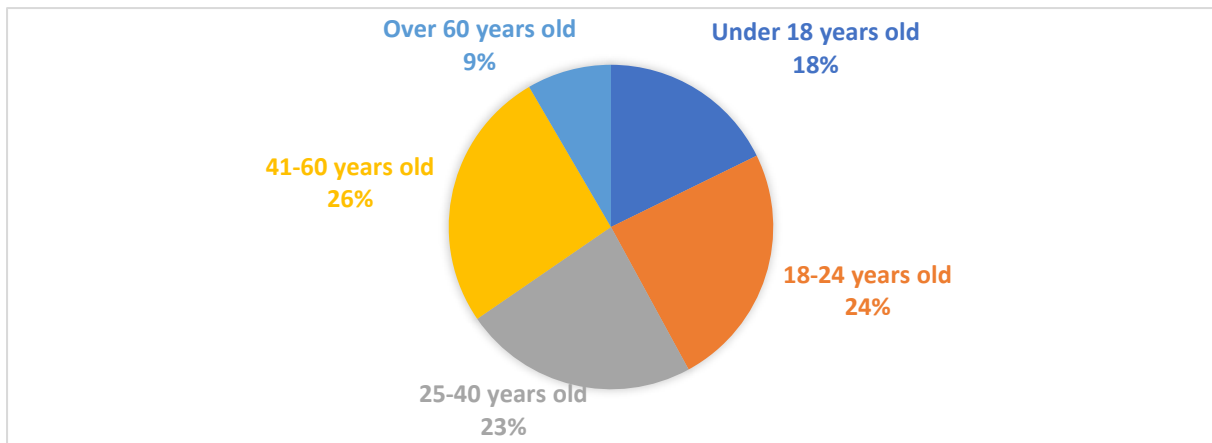
The questionnaire was conducted offline, each person was given an individual questionnaire to avoid unreliable answers, as well as to be able to clarify a question that was not clear to the

interviewee. The questionnaire consisted of 10 questions. It included berries that are grown in the Republic of Moldova, such as currants, strawberries, raspberries, blackberries, gooseberries and blueberries. During the study, the answers to the questionnaire were analysed.

Results and Discussion

According to the results of the study, 24 people aged under 18 years, 53 people aged 18-24 years, 52 people aged 25-40 years, 59 people aged 41-60 years and 18 people aged over 60 years responded to the questionnaire (Fig. 1).

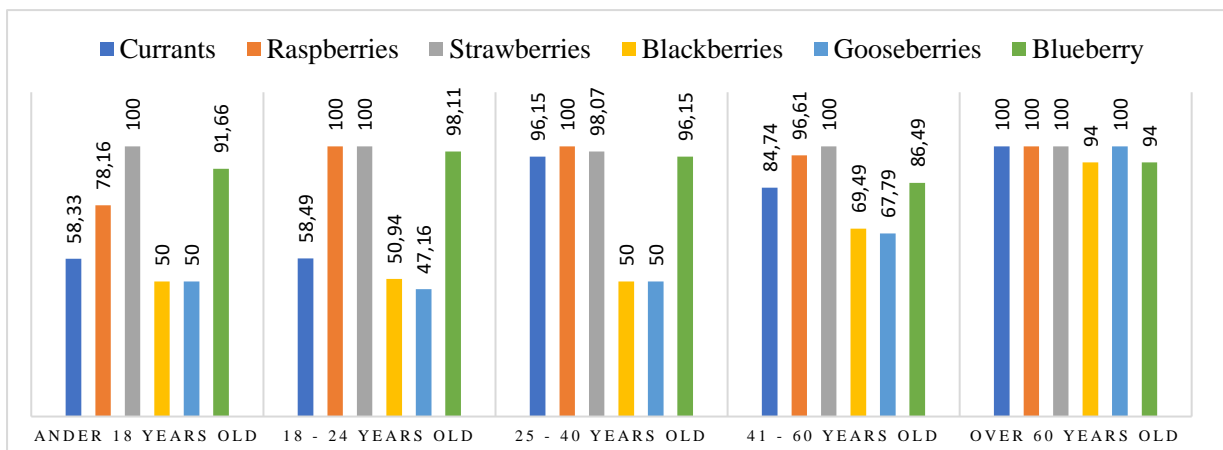
Figure 1. Number and age of people participating in the survey



When asked which berries, out of the offered ones, you like to eat most of all, you could choose several answers. The results were obtained as follows (Fig. 2).

Population of different ages, of the berries offered, the majority prefer strawberries. Young people up to the age of 24, in addition to strawberries, prefer to eat raspberries and blueberries. 25 to 60-year-olds prefer to eat currants. People over 60 years of age prefer to eat all berries (Fig. 2).

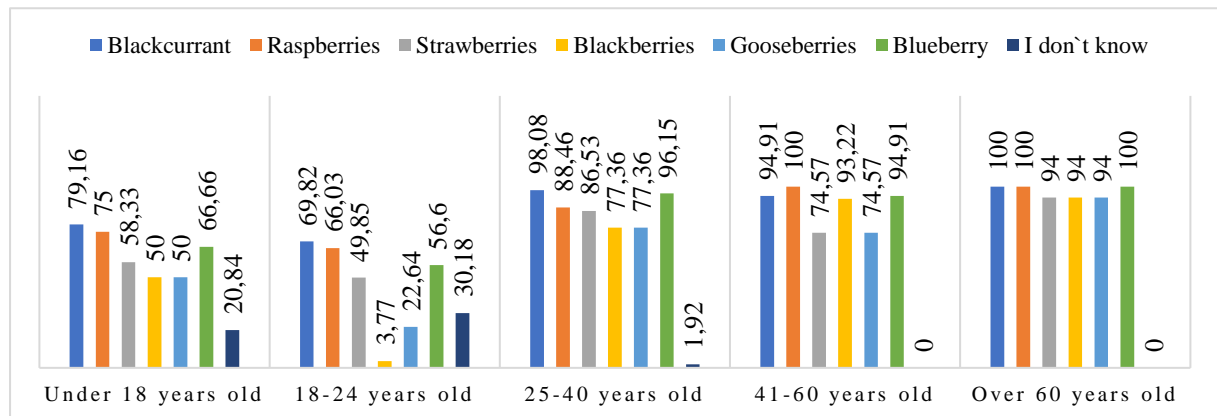
Figure 2. Diagram of consumption of berries (currants, raspberries, strawberries, blackberries, gooseberries, blueberries) by the population of different ages



When asked which of the proposed fruits of the berry species do you consider the most useful. Opinions varied, as many people do not know which are the most useful berries. Among the respondents there were people who prefer to eat some berries but consider others useful.

In the under-18 and 18-24 age group, currants were considered the most useful, followed by raspberries, then blueberries. In the 25 to 40 age group, currants and blueberries are considered most useful, and from 41 to 60 - raspberries, then currants and blueberries. And the over 60 age group considers all berries as useful (Fig. 3).

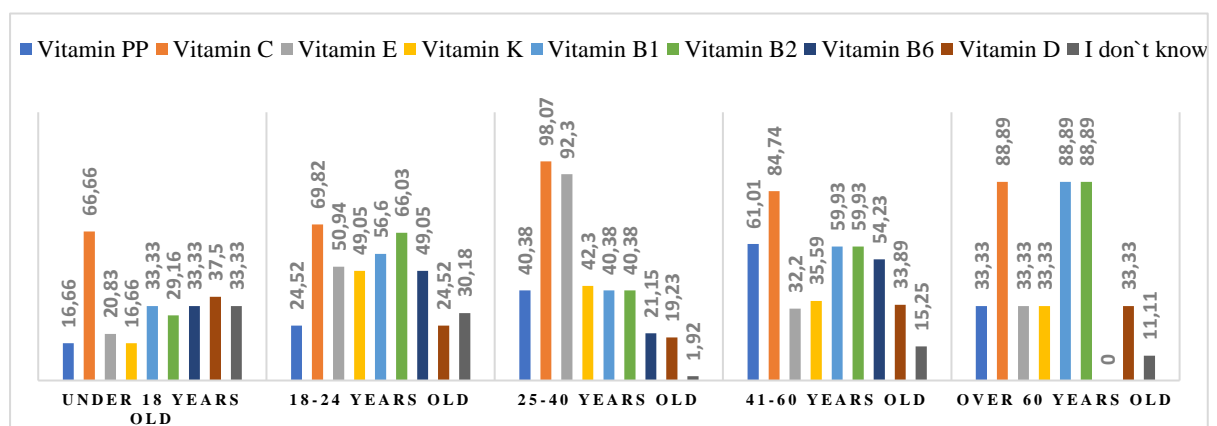
Figure 3. Diagram “The most useful berries”



In the age category under 18 years, 33.33% (8 people) do not know what vitamins are contained in black currants, the rest chose several answers: 66.66% (16 people) answered that black currants contain vitamin C; 37.50% (9 people) – vitamin D, 33.33% (8 people) – vitamins: B₁, B₆; 29.16% (7 people) – vitamin B₂; 20.83% (5 people) – vitamin E; 16.66% (4 people) – vitamins: PP and K (Fig. 4).

According to the data given in Fig. 4: In the age group of 18 - 24 years, out of 53 respondents, 30.18% (16 people) do not know what vitamins black currants contain. 69.83% (37 people) chose vitamin C; 66.03% (32 people) chose vitamin B₂; 56% (30 people) - vitamin B₁, 50.94% (27 people) - vitamin E; 49.05% (26 people) - vitamins: K and B₆; 24.52% (13 people) - vitamins: D and PP.

Figure 4. Diagram "What vitamins does black currant contain?"



In the age group of 25 – 40 years, 1.92% (1 person) of 52 respondents do not know what vitamins black currants contain. 98.07% (51 people) answered – vitamin C; 92.30% (48 people) – vitamin E; 42.38% (22 people) – vitamin K; 40.38% (21 people) – vitamins: PP, B₁ and B₂; 21.15% (11 people) – vitamin B₆; 19.23% (10 people) – vitamin D (Fig. 4).

In the age group of 41-60 years, out of 59 respondents, 15.25% (9 people) answered that they did not know what vitamins black currants contained. 84.74% (50 people) answered that black currants contain vitamin C; 61.01% (36 people) chose vitamin PP, 59.93% (33 people) chose vitamin B₁ and B₂; 59.29 (32 people) – vitamin B₆; 35.59% (21 people) – vitamin K; 33.89% (20 people) – vitamin D; 32.20% (10 people) – vitamin E.

In the age group over 60 years, 2 out of 18 respondents do not know what vitamins black currants contain. 88.88% (16 people) answered - vitamins C, B₁ and B₂; 33.33% (6 people) - vitamins: PP, K, E and D. No one chose vitamin D.

In all age categories, most respondents consume fresh berries in the afternoon (Table 1). In the age group under 18 years, this figure is 79.16%, 18 - 24 years - 71.69%, 25 - 40 years - 48.07%, 41 - 60 years - 67.79% and over 60 years - 66.66%.

In the first half of the day, the age group from 25 to 40 years old consumes the most fresh berries - 40.38%, and the least - people over 60 years old - 27.27% (Table 1).

Before bedtime, the group under 18 years old consumes the most berries - 29.16%, and the group over 60 years old - the least - 16.66%.

Table 1. Time of day consumption of fresh berries

Time of day	Age group									
	Under 18 years old (24 people)		18 – 24 years old (53 people)		25 – 40 years old (52 people)		41 – 60 years old (59 people)		Over 60 years old (18 people)	
	Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%
In the morning	8	33.33	20	37.73	21	40.38	19	32.20	5	27.77
In the afternoon	19	79.16	38	71.69	25	48.07	40	67.79	12	66.66
Before going to bed	7	29.16	24	45.28	10	19.23	14	23.72	3	16.66

Most respondents eat berries twice a day, in all age categories. People aged 25 to 40 years eat berries the most twice a day - 57.69%, and people over 60 years old - 11.11% - the least. Once a day – the group over 60 years old consumes the most – 88.88%, and the least – people aged 25 – 40 years – 28.30%. The group of 18-24 years old consumes berries more than twice a day - 22.64%, and the least of all over 60 years old - 0% (Table 2).

Table 2. Frequency of consumption of fresh berries

Time of day	Age group									
	Under 18 years old (24 people)		18 – 24 years old (53 people)		25 – 40 years old (52 people)		41 – 60 years old (59 people)		Over 60 years old (18 people)	
	Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%
1 time a day	8	33.33	15	28.30	20	38.46	23	38.98	16	88.88
2 times a day	11	45.83	26	49.05	30	57.69	29	49.15	2	11.11
More than 2 times a day	5	20.83	12	22.64	2	3.84	7	11.86	0	0

When asked whether it is possible to bring roundworm eggs, pinworm eggs, giardia cysts into the body when eating unwashed berries, in the age category under 18 years old - 7 people answered "no", 17 - answered "yes". From 18 to 24 years old and from 24 to 40 years old answered yes. From 41 to 60 years old, one person answered "no", the rest - yes, and over 60 years old - all answered "yes".

In one question of the questionnaire, respondents had to write the answer to the question, "What are the benefits of black currants?" Many chose not to answer this question. In the age category under 18 years old – 9 people did not answer anything, – a lot of vitamins – 3 people; improves blood circulation – 3 people; increases immunity – 9 people.

In the age category of 18 – 24 years (53 people) – 13 people did not answer, 24 people – increased immunity; 9 people – a lot of vitamins; 1 person – good for vision and brain; 6 people – is an antioxidant, cleanses the blood.

In the age category from 25 to 40 years (52 people), 6 people did not write anything, 25 people – increases immunity; 12 people – antioxidant; 5 people – contains a lot of vitamins; 1 person – normalizes blood pressure; 1 person – good for the brain; 1 person – increases hemoglobin; 1 person – rich fiber content.

In the age group 41 – 60 years (59 people): 11 did not answer, 26 people – increases immunity; 7 people – a lot of vitamins; 3 people – antioxidant; 2 people – a lot of vitamin C, good for the blood; 1 person – calms the nervous system; 1 person – improves vision.

In the age category over 60 years old (18 people): 2 people did not write anything; 10 people – increases immunity; 1 person – improves well-being, cleanses the blood; 1 person – increases the number of red blood cells, 1 person – a lot of vitamins, improves blood circulation; 1 person – improves vision, 1 person – for blood, increases blood pressure, 1 person – improves memory.

According to the survey, respondents prefer to eat black currant fruits fresh. In the absence of fresh berries, they consume them in frozen or processed form, for example, in the form of jam,

marmalade, berries ground with sugar, compote, juice, in baked goods, and in some questionnaires berry liqueur is also mentioned. Unfortunately, not everyone consumes healthy custard teas from leaves, twigs and fruits of dried sweet berries (Table 3).

Table 3. Consumption of black currant leaves, twigs and berries

Time of day	Age group									
	Under 18 years old (24 people)		18 – 24 years old (53 people)		25 – 40 years old (52 people)		41 – 60 years old (59 people)		Over 60 years old (18 people)	
	Number of people	%	Number of people	%	Number of people	%	Number of people	%	Number of people	%
Fresh berries	14	58.33	31	58.49	50	96.15	47	79.66	16	88.88
Frozen berries	5	20.83	12	22.64	36	69.23	2	3.38	1	5.55
Berry jam	2	8.33	29	54.71	35	67.30	13	22.03	12	20.33
Grated berries with sugar	3	12.5	11	20.75	11	21.15	27	45.76	7	33.88
Berries in cookies, cakes, pies.	6	25	14	26.41	4	7.69	33	55.93	6	33.33
Berry compote	4	16.66	27	50.94	32	61.53	6	10.16	7	38.88
Juices	2	8.33	3	5.66	1	1.92	3	5.08	3	16.66
Steamed tea from dried leaves, twigs and berries	2	8.33	7	13.20	6	11.53	5	8.47	1	5.55
Leaves used in cucumber canning	1	4.16	1	1.88	12	23.07	15	51.72	5	27.77

The level of consumption of fresh, frozen, processed and leaf and twig tea by respondents is presented in Table 3.

According to the data given in Table 3, respondents of all ages prefer to eat fresh berries more often. Frozen berries are consumed the most in the age group of 25-40 years - 69.23% and the least in the age group of 41-60 years - 3.38%. Jam is consumed most in the age group of 25-40 years - 67.30%, the least - in the age group up to 18 years - 8.33%.

Grated berries with sugar - 45.76% are most preferred by people aged 41 - 60 years, and respondents under 18 years old consume the least - 12.5%. For years, people aged 41.60 years - 55.93% - most often consume cookies, cakes, pies, and least of all in the category under 18 years.

Berry compote is drunk most of all at the age of 25 – 40 years – 61.53%, and people aged 41 – 60 years – 10.18% drink the least. Blackcurrant juices are most preferred by people over 60 years old - 16.66%, and least of all - by people aged 25 - 40 years - 1.92%.

Steamed tea from dried leaves, twigs and berries is most drunk by respondents from 18 to 24 years old - 13.20%, and the least - by people over 60 years old - 5.55%. The leaves used in the preservation of cucumbers are the most. Respondents from 41 to 60 years old use it – 51.72%, and people from 18 to 24 years old – 1.88% use it the least.

Conclusions and Recommendations

According to the results of the study, 206 people took part in the survey, including 89 men and 117 women of different age groups: under 18 years old, 18 – 24 years old, 25 – 40 years old, 41 – 60 years old, and over 60 years old, who found that:

1. Strawberries are the most favorite treat, followed by raspberries;
2. Black currants and raspberries are considered the most useful berries;
3. Fresh berries are consumed throughout the season;
4. Eat berries twice a day, mainly in the afternoon;
5. Most respondents know that eating unwashed berries with dirty hands can lead to various intestinal diseases;
6. Most respondents believe that black currants contain the highest amount of vitamin C.

We recommend working with the population, promoting the benefits of eating berries, especially black currants, grown in organic conditions, with a high content of vitamin C and other nutrients with health-improving properties

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