

Conclusion. Analytical color reaction confirmed the presence of PUFA in the creams "Cream-oil for hands and nails intensive nutrition." "Folk recipes", "Hyaluronic cream-mask for hands", "Day cream for the face "SkinSensation", "Youth proteins. Night rejuvenation cream for face. Bielitamilkline". The fact that for extracts of creams "Proteins of youth. Bielitamilkline Day Facial Radiance Cream "and" Hand, Nail and Cuticle Cream. PRO hands ” we were unable to confirm the presence of the components declared in the composition does not necessarily mean that they were not included in the composition during production. These creams have already been opened and used prior to testing, although the expiration date has not yet passed. And as mentioned, after a certain period of storage, especially after opening the tube, the content of PUFA may decrease.

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ANALYSIS OF AVERAGE MONTHLY AIR TEMPERATURES BY SEASONS OF THE YEAR IN VITEBSK DURING THE PERIOD OF INSTRUMENTAL OBSERVATIONS

Raman Shek, Darya Famina

VSU named after P.M. Masherov, Vitebsk, Belarus

Keywords: air temperature, average annual air temperature, average monthly air temperature, climatic norm, climate change.

The relevance of the topic is determined by the availability of data sets of observations of the air temperature in Vitebsk for the period of instrumental observations to analyze its natural fluctuations and identify the features of the temperature regime of individual regions in conditions of climate change. The purpose of the work is to identify changes in air temperature in Vitebsk for the period 1897-2020.

Material and methods. The study was carried out on the basis of archival data of the Vitebskobhydromet Branch with the aim of analyzing the average annual, average monthly and seasonally average air temperatures for the period of instrumental observations based on data from the Vitebsk meteorological station. At the same time, data on air temperature have been completely preserved from January 1945 to the present, data aren't available for the periods 1900–1924 and 1942–1944 and for some years they have been partially preserved.

Methods used in the work: comparative-analytical, descriptive, statistical, analysis and generalization.

Findings and their discussion. During the study for the period 1897-2020 the values of the average monthly, average annual and average seasons of the year air temperatures were calculated and compared with the climatic norm, which is used in daily production practice by the hydrometeorological service of Belarus [1].

We have identified an increase in the average annual air temperature in Vitebsk since the 70s of the last century, the most significant since 1989. The highest average annual air temperature was recorded in 2020 (+8,6°C) and exceeded the climatic norm by 1,9°C (+6,1°C). The average temperature of the last thirty years has increased in comparison with the previous one by +1,6°C. The largest increase in air temperature +0,8 °C was recorded in the last decade (2011–2020) compared to the previous one. For the period 1945–2020 a positive deviation of the average annual air temperature in Vitebsk from the climatic norm in the period before climate warming was recorded in 1949, 1975 and 1983, and during the warming period (in Belarus since 1989) in most years, while the maximum positive deviation was +2,5°C in 2020 (in the same year, the average monthly January air temperature for the first time since 1897 became positive and amounted to +1,1°C).

The boundaries of natural climatic seasons (the period of the year, characterized by the transition of the average daily air temperature through certain limits in the direction of decreasing and increasing) do not coincide with the calendar boundaries of the months. However, in climatology in temperate latitudes in the northern hemisphere, while dividing the year into four seasons, the period from December to February is conventionally taken as winter, from June to August, for spring - from March to May, for autumn – from September to November [2]. We have analyzed the air temperature in Vitebsk for the period of instrumental observations along the calendar boundaries of the seasons of the year.

The calculation and analysis of the average monthly air temperature in the winter season was carried out on the basis of archival data for 89 years of observations. The average temperature for the season during the period of instrumental observations was –5,9 °C, the warmest month was more often December (57,3% of years), and the coldest month was February (41,6% of years). The warmest winter was 2019-2020, when the average air temperature for the season was 1,2 °C. The coldest winters were 1928-1929 and 1939-1940, when the average temperature for the season was –11,7 °C. The average monthly temperature in December was –4,4 °C. At the same time, the maximum was recorded in 2007 (2,5 °C), the minimum in 1979 (–12,6 °C). The average monthly temperature in January was –6,8 °C, the maximum one was recorded in 2020 (1,1 °C), the minimum in 1987 (–17,0 °C). The average monthly temperature in February was –6,5 °C, the maximum one was recorded in 1990 (1,6 °C), the minimum in 1929 (–18,0 °C).

To calculate and analyze the average monthly temperatures of the spring season, the archival data for 94 years of observations were used. The average temperature for the season during the period of instrumental observations was 5,6 °C, the warmest month is May (100% of years), and the coldest month is March (100% of years). The warmest was the spring of 2014, when the average air temperature for the season was 9,1 °C. The coldest spring was 1941 and 1952, when the average temperature for the season was 1,7 °C. The average monthly temperature in March was -1,9 °C. At the same time, the maximum temperature was recorded in 2007 (4,7 °C), the minimum in 1952 (-10,5 °C). The average monthly temperature in April was 5,9 °C, the maximum one was recorded in 2001 (10,2 °C), the minimum in 1929 (-0,6 °C). The average monthly temperature in May was 12,8 °C, the maximum one was recorded in 1897 (18,1 °C), the minimum in 1980 (7,7 °C). At the same time, May 1897 turned out to be warmer than the warmest May 2013 (17,3 °C), the period of climate warming since 1989.

The calculation and analysis of the average monthly air temperature in the summer season was carried out on the basis of archival data for 88 years of observations. The average temperature for the summer season during the period of instrumental observations was 17,0 °C, the warmest month is July (64,8% of years), and the coldest month is June (61,4% of years). The warmest was the summer of 2010, when the average air temperature for the season was 21,2 °C. The coldest summer was 1962, when the average temperature for the season was 14,1 °C. The average monthly temperature in September was 16,2 °C. At the same time, the maximum was recorded in 2019 (20,8 °C), the minimum in 1928 (11,7 °C). The average monthly temperature in July was 18,0 °C, the maximum was recorded in 2010 (23,4 °C), the minimum in 1979 (14,3 °C). The average monthly temperature in August was 16,8 °C, the maximum was recorded in 2010 (21,4 °C), the minimum in 1926 (13,9 °C).

To calculate and analyze the average monthly temperatures of the autumn season, we used archival data for 93 years of observations. The average temperature for the season during the period of instrumental observations was 5,8 °C, the warmest month is September (100% of years), and the coldest month is November (98,9% of years). The warmest was autumn 2020, when the average temperature for the season was 9,1 °C. The coldest fall was in 1993, when the average temperature for the season was 2,0 °C. The average monthly temperature in September was 11,5 °C. At the same time, the maximum was recorded in 2018 (14,5 °C), the minimum in 1973 (8,1 °C). The average monthly temperature in October was 5,7 °C, the maximum was recorded in 2020 (10,1 °C), the minimum in 1976 (-0,3 °C). The average monthly temperature in November was 0,3 °C, the maximum was recorded in 1996 (4,4 °C), the minimum in 1993 (-7,4 °C).

Conclusion. The study found that since the 70s of the 20th century, an increase in the average annual air temperature has been recorded, the most significant since 1989, especially in the last decade, the maximum in 2020. The warmest seasons in Vitebsk were the seasons of the climate warming period: winter 2019-2020, spring 2014, summer 2010, autumn 2020.

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**PROTECTED SPECIES OF PLANTS OF THE REPUBLIC
OF BELARUS, STORED IN THE HERBARIA
OF THE DEPARTMENT OF ZOOLOGY AND BOTANICS
OF VSU NAMED AFTER P.M. MASHEROV**

Anton Shlyakhtov

VSU named after P.M. Masherov, Vitebsk, Belarus

Keywords: VSU herbarium, Red Book of the Republic of Belarus, Belarusian Lake District, protected plants, herbarium specimens.

The protection of rare plant species is one of the important international and state tasks. In the Republic of Belarus, many plants have already been taken under protection. Preventing the extinction of rare plant species is necessary, first of all, to preserve their gene pool, for the purpose of scientific study, economic, cultural and medical use [1].

To preserve the country's phyto-diversity, regulatory documents have been developed, including the Red Book.

The Red Book of the Republic of Belarus: Plants (2015) contains a list of species of higher vascular plants, mosses, fungi, algae and lichens that are threatened with complete extinction in the country. It contains information about protected species, about the places of occurrence and collection of these plants in Belarus, about the state in recent years and the degree of danger of extinction.

The purpose of the work is to make an inventory of the stock herbarium of the Vitebsk State University named after P.M. Masherov in order to identify the exact number of species of protected plants included in the Red Book of the Republic of Belarus, in the collection of the herbarium; analyze the general condition of herbarium specimens, as well as systematize by categories of protection,

Material and methods. The material for this work was herbarium specimens of protected plant species included in the Red Book of the Republic of Belarus (2015), which are kept in the stock herbarium of the Department of Zoology and Botany of VSU named after P.M. Masherov.