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Source Material for Sesame Breeding in the Northern Regions of the Republic of Uzbekistan

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ABSTRACT

For the first time in the climatic conditions of the Khorezm region, economically valuable traits of 70 samples of the world collection of sesame, belonging to the subspecies ssp.quadricarpellatum Hilt and ssp.bicarpellatum Hilt, originating from India, China, Afghanistan, Mexico, Turkmenistan, Uzbekistan, Armenia, Israel, Germany, Iran, Egypt, Ukraine, Yugoslavia, France, Russia, Pakistan, Hungary, Bulgaria, Korea, Tajikistan, Venezuela, Syria and Kenya.

Based on the study of the world collection of sesame in the climatic conditions of Khorezm, for different areas of sesame breeding, the following was distinguished: by early maturity - 5, by the productivity of one plant - 10, by the weight of 1000 seeds - 6 and by a set of features 5 sesame sample.

KEY WORDS: *sesame world collection, selection, selection, study, local varieties, early, fertile, fertile, large-seeded, single sources.*

Introduction

Sesame is not only the primary oil-producing plant, but it also has medicinal qualities that set it apart from other oil-producing plants. Fresh sesame leaves and branches are used to make a variety of delectable salads in eastern countries, and in local medicine, oil extracted from white and light yellow sesame seeds is used as an ointment to cure various stomach and intestinal ulcers as well as burns on the body. Black sesame seeds were created by combining them with various plant seeds and burning them in ancient Central Asian folk medicine to boost physical stamina [1.]; [2.].

One of the priciest oils on the market, sesame oil is mostly consumed by Turkey, the United States, Japan, the United Arab Emirates, and several European nations. Sesame prices have doubled on the global market in the last four years as a result of the expanding customer base (Russia, Kazakhstan, Baltic countries, etc.). [3.]; [4.]; [5.].

More than forty nations around the world, including Burma, India, China, Ethiopia, Sudan, Uganda, Nigeria, Somalia, Asia Minor, Caucasus, Iran, Central Asia, Afghanistan, Far East, Japan, and Southern Europe, grow sesame as one of their primary oil-producing plants. Sesame is also widely grown in the United States, Mexico, and Peru. [6.]; [7.].

The President of the Republic of Uzbekistan issued Decree No. PF-5330 on February 12, 2018, which was titled "On Organizational Measures for the Fundamental Improvement of the State Management System of Agriculture and Water Management," and on January 19, 2018, which was titled "On Measures for the Rapid Development of the Oil Industry." These decisions and decrees also define a number of tasks related to processing, providing the population with agricultural

products at stable prices throughout the year, increasing the export potential of economic sectors through the production of competitive products, and ensuring the Republic of Uzbekistan's food safety. [8.]; [9.].

It is one of the most pressing issues of our time to develop new oilseed varieties with high oil content, high yield, resistance to environmental stress factors, exportability, organization of primary and variety seed production and production, is considered, in order to provide the population of our republic with a wide range of affordable and high-quality vegetable oil. It is no secret that the income generated by the salt in the soil is declining year by year in Karakalpakstan and Khorezm region, the northern parts of our republic, and that sizable portions are becoming unfit for cultivation. However, by selecting reasonably salt-resistant, low-water, and high-quality export crops, these lands can also be exploited productively. [10.]; [11.]; [12.].

The place of research and its climatic conditions.

The study was conducted in 2022 at the Khorezm region's Urganch district, close to the Amudarya shore (500-800 m away). The vast Turanian plain, which spans the Central Asian lowlands, includes the northernmost portion of the Khorezm oasis, one of our republic's northernmost provinces. It was located on the old Amudarya delta's left bank. The Toshsaka plateau forms its eastern boundary, while Turkmenistan forms its western border. Geographically speaking, Karakalpakstan and the Khorezm region are in the country of Uzbekistan's north. These places are located in a very dry environment with yearly rainfall of only 80 to 90 millimeters, most of which falls in the winter and spring. The climate of the oasis is sharply continental. Summer is hot and dry. In July, the average air temperature is +28°C, the average absolute high temperature is +41°C, sometimes the temperature reaches +46°C. During the growth period, the sum of positive temperatures varies from 4200°C to 5400°C.

The Khorezm oasis is unique in that it has plenty of light and heat, continental variety, and dry air. 2700–3000 hours of sunlight are available annually, with 360–400 hours in the summer and 90–130 hours in the winter. There is significant daily temperature variation (10–150 C in winter and 15–200 C in summer).

Soil. The soil in the experimental region is gray, and the highly salinized seepage water is found there at a depth of 1.5 to 1.7 meters. Other than rice, agricultural lands are typically washed three to four times year. Because the antecedent plant was rice, the experimental field had two washings in the winter and spring of 2022.

The results of several years were compared to the data from the hydrometeorological center of the Khorezm region hydrometeorological department in 2022. The temperature of the soil and the air affects all physiological and biochemical activities in plants, including water uptake, the transfer of nutrients from roots to leaves, and the transport of plastics from leaves to roots.

Methodology

Regional varieties of sesame and samples from 70 global collections of sesame from various nations were examined during the course of the study. Research of the world collection of oilseed crops (VIR, 1984; O'ITI, 2010) and statistical analyses based on the BA Dospekhov method were the foundations for scientific studies (1985). Sesame collecting samples were planted without being returned using a 70x15 cm grid. The planting depth is 1.5–2.5 cm, and the first 10 days of May are the best times to plant the samples.

Result and discussion

By morning feature. According to the length of sesame's growing season, the early growing season lasts 90 to 100 days, the mid-late growing season is 110 to 120 days, and the late growing season is

120 to 140 days. Early and mid-season samples were mixed up with the research samples without being differentiated. Five samples were chosen in the middle of the evening.

They include samples from Uzbekistan (K-78), Spain (K-330), Turkey (K-695), Peru (K-866), and Kenya (K-1371), all of which ripened 10 to 15 days sooner than the norm (Table 1).

The average number of side branches in the chosen samples ranged from 2 to 4, and the sample Tashkentsky-122 variation had 4 pieces. 28 cm in sample 330 k-866 (Spain), 29 cm in sample 330 k-1371 (Kenya), 34 cm in sample 330 k-78 (Uzbekistan), and 30 cm in sample 330 k-695 were the heights to the first spikes. It was observed that 48 cm was the equivalent. Only one sample, K-330 (Spain), had 130 tubers when the average number of tubers per plant in the samples chosen for early ripening was examined; the model had the advantage here with 54 more tubers than the variety.

Table 1 Valuable economic characteristics of the samples selected for early ripening

Number	The origin	Growing period, day	Number of side branches	Height to the 1st tubercle, cm	Number of pods, pcs	1 plant productive league, g	Weight of 1000 seeds, g
Ст-122	Uzbekistan	130	4	48	76	14	2,6
78	Uzbekistan	115	3	34	68	14	2,6
330	Spain	120	4	28	130	26	3,2
695	Turkey	115	2	30	64	12	3
866	Peru	115	3	29	67	14	3,0
1371	Kenya	115	3	29	67	12	3,0

According to the characteristic of large seed. In the study, 15 samples had little seeds (2.3–2.5 g), 109 samples had moderately large seeds (3–3.6 g), and 49 samples had nearly identical findings. Andoza Tashkentsky had 122 kinds, and 1000 seeds weighed 2.6 grams. Even though some samples' seeds were larger than those of the model variety, only one plant produced much. Six samples were chosen because they displayed excellent 1000 seed weight and plant productivity values. 1000 seeds from these chosen samples weighed 3.3–3.5 grams, which was 0.5–0.9 grams more than the sample Tashkentsky 122 variety. K-236 Azerbaijan (3.3 g), k-255 Ethiopia (3.5 g), k- 334 India (3.5 g), k-615 Mexico (3.4 g), k-691 Peru (3.5 g) and k-1409 Kenya (3.5 g) samples were isolated.

On the productivity of one plant. Based on the output of one plant, 10 sesame samples were chosen. A high index for the number of tubers per plant was present in almost all of the samples chosen for the productivity of one plant. The sample is 6–12 grams more productive than the variety Tashkentsky–122 in these samples, where the average output of one plant is up to 20–26 grams (Table 2).

Table 2 The main economic characteristics of the samples selected for the productivity of one plant

Number	The origin	Length to the 1st horn, cm	Height to the 1st tuber, cm	Number of pods, pcs	1 plant product, g
Ст-122	Uzbekistan	24	48	76	14
57	Uzbekistan	23	60	113	20
106	Armenia	11	36	105	20
170	Turkey	49	79	110	26
255	Ethiopia	37	59	97	21
269	China	33	62	105	22

330	Spain	6	28	130	26
420	Turkmenistan	15	43	97	20
615	Mexica	22	41	84	20
691	Peru	23	60	113	25
723	Israel	18	53	115	23

According to complex signs. Five different varieties of sesame samples, including k-236 (Azerbaijan), k-255 (Ethiopia), k-334 (India), k-615 (Mexico), and k-691, were chosen among the examined sesame samples based on complicated characteristics (Peru).

The samples of this chosen variety were shown to be superior to the standard variety in terms of pod count (up to 8–46), plant productivity (up to 6–11 grams), and seed size (up to 0.7–0.9 grams, weight of 1000 seeds) (3- table).

Table 3 Valuable economic characteristics of sesame samples selected according to complex characteristics

Number	The origin	Main stem length, cm	Number of side branches	In one plant the number of cocci	1 plant productivity, g	Weight of 1000 seeds, g
Ст-122	Uzbekistan	140	4	76	14	2,6
236	Azerbaijan	160	3	87	20	3,3
255	Ethiopia	149	3	97	21	3,3
334	India	120	3	122	25	3,5
615	Mexica	131	3	84	20	3,4
691	Peru	153	5	113	25	3,5

Conclusion

For the first time, the climatic conditions of the Khorezm region were studied in accordance with the valuable economic characteristics of 70 varieties and samples of sesame that had been imported from various parts of the world. Early ripening, fruitful, large-seeded, and high-oil sources were chosen for sesame selection. These samples facilitate selection and aid in the development of novel, high-yielding sesame cultivars suitable for the Khorezm climate.

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