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BIOMETRIC PARAMETERS OF THE CHILLI PEPPER CULTIVARS SUITABLE FOR THE CULTIVATION IN GREENHOUSE CONDITIONS

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Introduction

Around the world, chilli pepper (*Capsicum annum* L.) is planted on 4.6 million hectares, and 69.3 million tons of products are produced from it. The average yield is 100-110 tons per hectare in greenhouses, and 14.1-18.3 tons in open fields. Nowadays, interest and demand for chilli pepper products is increasing day by day, therefore, this crop is cultivated in all countries of the world. The global average yield of chilli pepper (*Capsicum annum* L.) "increased from 7.3 tons in 2006 to 18.4 tons in 2019 in open fields, while it increased from 80 tons to 110 tons in greenhouses", the creation of chilli pepper cultivars resistant to heat and cold, suitable for growing in saline soils, and resistant to diseases and pests is one of the urgent issues.

The purpose of the research is to select high-yielding cultivars of chilli pepper (*Capsicum annum* L.) suitable for cultivation in greenhouses and to develop important elements of cultivation technology.

Research methods. Greenhouse and laboratory research were carried out according to guidelines and methodological manuals, such as V.F. Belik's "Experimental methods in vegetable and melon growing", B.J. Azimov, B.B. Azimov's "Methodology of conducting experiments in vegetables, melon crops and potato growing", Ye.Ya. Glushenko, M.V. Voronina, A.I. Strekalova's "Guidelines for studying and maintaining the world collection of vegetable nightshade crops (tomatoes, peppers, eggplants)", "Methodological recommendations for conducting experiments with vegetable crops in protected ground structures (RIVG)", V.A. Kolyasova's "The study of microclimate according to AFI method", and the statistical analysis of the results was carried out using the Microsoft Excel program in the dispersion analysis method of B.A. Dospehov.

There is a lot of information on the cultivation of red pepper in greenhouse conditions in foreign literature (P.W. Bosland). To date, about 2,000 cultivars and hybrids of chilli pepper have been created in the world, and pepper is a crop that stands out among vegetable crops with its unique taste. It was reported that the presence of alkaloid capsaicin, which determines its bitterness, is the reason for the widespread use of this plant in medicine and production industry [1; 3389–3396-B].

As a result of a comprehensive study of chilli pepper (*Capsicum annum* L.) varietal samples in greenhouse conditions, the KL-27 sample was isolated from the prospective KL-185 sample among the samples from the gene pool of Plant Genetic Resources research institute, based on individual selection and study of its generations. This sample was tested by planing for 3 years, and its biology and cultivation technology were studied. During this period, individual selection works were carried out regularly. As a result, a new cultivar of chilli pepper was created, which is high-yielding, precocious, the fruit is bitter, resistant to cold and diseases, and it has a good shelf life..

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Since the cultivars of chilli recommended for planting in greenhouses in Uzbekistan has not been included in the state register, this new cultivar was compared with the Margilon 330 cultivar of chilli pepper, which is allowed to be planted in open fields as a standard.

The KL-27 sample of chilli pepper was named as Sharq gavhari (Jewel of East) on the recommendation of the Scientific Council of the Research institute.

Table-1

Phenological parameters of chilli pepper cultivars grown for variety selection trials under greenhouse conditions (2020–2023)

№	Cultivars	Seedlings viability, day		From seedling planting to…, day					
				to flowering		to fruiting		to fruit ripening	
		10 %	75 %	10 %	75 %	10 %	75 %	10 %	75 %
1	Margilan 330 (st)	3	6	17	35	41	49	61	76
2	«Sharq gavhari»	3	4	14	31	39	46	58	69
3	×	3	5	15,5	33	40	42,5	59,5	72,5
4	∑	6	10	31	66	80	95	119	145

When the duration of the phenological phases of chilli pepper cultivars was studied, the duration of the phenological phases from the planting of the seedlings to their viability, from the mass sprouting to flowering, to fruiting, and to the technical maturity of the fruits were observed thoroughly.

It took 3-6 days for 10-75% viability and sprouting of seedlings after planting in the control variety Margilan 330, while it took 3-4 days or 2 days earlier for the variety Sharq gavhari than the control variety. 10-75% flowering of the plants took 17-35 days in the control variety Margilan 330, 14-31 days in the Sharq gavhari variety, or 3-4 days earlier than the control variety. For technical fruit ripening it took 41-49 days in Margilan 330 variety, 39-46 days in Sharq gavhari variety or 3 days earlier than the control variety. It was found that fruits ripened in 58-69 days or 3-8 days earlier than the control, while it took 61-76 days for the control Margilan 330 variety to reach initial fruit ripening.

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Table-2

Plant height and number of lateral shoots of chilli pepper cultivars grown for variety selection trials under greenhouse conditions (2020–2023)

№	Cultivars	Mass flowering period				Mass ripening of fruit			
		Plant height		Number of lateral shoots		Plant height		Number of lateral shoots	
		cm	%	pcs	%	cm	%	pcs	%
1	Margilon 330 (st)	57,0	100,0	2,0	100,0	107,2	100,0	2,0	100,0
2	«Sharq gavhari»	69,1	121,1	2,0	100,0	148,3	138,3	2,0	100,0
3	×	×	63,1		2		127,8		2
4	∑	∑	126,1		4		255,5		4
5		r=0,93±0,07							

At the time of mass flowering in the control variety, the height of the plant was 57 cm, while in the variety Sharq gavhari it was 69.1 cm or 12.1 centimeters higher than the control. The number of lateral shoots was 2 pieces in the control and the new variety from the period of mass flowering to the period of full ripening of the fruit. At the time of full fruit ripening, the height of the plant in the control variety was 107.2 cm, while in the cultivar Sharq gavhari it was 148.3 cm or 38.3% higher. The correlation between the height of the plants during mass flowering and full fruit ripening periods was strong r=0.94±0.07.

References used

1. DeWitt, D., and Bosland, P. W. Complete Chile Pepper Book: A Gardener's Guide to Choosing, Growing, Preserving, and Cooking. Timber Press. (2009). P // 3389–3396.
2. Gikalo G.S. Regionized chilli pepper cultivars./ Cultivation of pepper and eggplant in Krasnodar region.- Kn.publ.house, 1972. P. 60–63.
3. Description of varieties included in the state register of agricultural crops recommended for planting on the territory of the Republic of Uzbekistan. Tashkent, 2010. P. 51–52.
4. Mamedov M.I., Pyshnaya O.N. Selection of chilli pepper for fruit quality . // The collec.sci.theor.conf. "Selection and seed-breeding of vegetable crops" M., 1998. P.127.