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Short Communication

Useful Properties of Tomato Fruits. Study of Cherry Tomato Varieties in the Open Field of Bukhara Region of the Republic of Uzbekistan

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Tomato occupies the leading place among vegetable crops in the world: every seventh part of the harvested vegetables on the globe are tomatoes, and their share in the total volume of processed fruit and vegetable raw materials reaches 80%. Tomato culture has become widespread due to the high flavor and nutritional qualities of the fruit, which are used for food both fresh and processed.

The widespread use of this crop is determined by its high flavor, dietary and nutritional properties. Fruits contain 1.6-6.4% sugars, citric and malic acids, vitamins C (14-64 mg/%), B1, B2, P, P1, K, proteins, carotene, iron, potassium and phosphorus salts. They are consumed fresh, processed into juices, purees, sauces and pickled, i.e., they are a valuable food product [1].

They are used to make tomato puree, tomato paste, juice, cocktails, soft drinks and other products. No national cuisine is without tomato fruit. Tomato is a valuable product for improving health. To meet the daily human requirement of vitamin C, provitamin A, iron and potassium, it is enough to consume 150-200 g of fresh tomato fruit daily, i.e. 2-3 fruits or a glass of juice [2].

Regular consumption of fresh fruits has a beneficial effect on the human body. They contain: sugars, including fructose and glucose, pectin substances, hemicellulose, fibre, organic acids, including citric acid, malic acid, oxalic acid, tartaric acid, essential and substituted amino acids, β-carotene, vitamins E, C, B1, B2, B6, B9, PP, lycopene, biotin, pantothenic acid, macro- and microelements and others. Fruits also contain 3-5 g of tomatine, which determines their phytoncide properties. Production technology allows preserving 80 to 100% of biologically valuable substances in tomato products [3].

Recently, tomato has been regarded as a significant source of antioxidants - substances that can protect the human body from the carcinogenic effects of free radicals. Tomatoes are a rich source of antioxidants that protect the human body from oxidative stress, inhibiting free-radical oxidation and curbing the aging process and the development of many diseases. Due to the high content of carotenoids, especially lycopene, tomato fruits and tomato juice delay the development of cancer [4]. Flavonoids are found in yellow and red fruits. They are especially abundant in small "cherry" tomatoes, in red onions. The antioxidant activity of lycopene, a red pigment contained in tomatoes, is also very high [5,6].

Currently, there is a change in the requirements of the tomato market: from classic types to special varieties such as variegated (yellow-fruited, orange-fruited, raspberry, etc.), small-fruited, cyst-shaped, cherry-shaped and others. Much attention is paid to the appearance, texture and flavor properties of fruits. Cherry (cherry) and cyst-shaped tomatoes are characterized by an increased content of soluble solids (8-12%), have a pronounced sweet, almost dessert-like flavor, which increases their dietary value and overall attractiveness to customers [7].

In the country, tomatoes are mainly grown for table and canning purposes with large and medium-sized fruits. With the development of market-oriented economy and farms, as well as the increase in the area of protected ground, the need for high quality competitive and nutritious products has significantly increased and there is interest in growing cherry tomato. The importance of locally adapted tomato varieties and hybrids is particularly high in a changing climate.

Comprehensive study and selection of early maturing, resistant to biotic and abiotic factors, high-yielding, high nutrient content cherry tomato varieties and hybrids is an urgent task to replenish the range of vegetables and improve the provision of valuable vitamin products to the population of the republic.

Taking into account the above, we conducted a test of varieties and hybrids of cherry tomato in the open ground in the conditions of sharply continental climate of Bukhara region of the Republic of Uzbekistan in 2022-2023.

The purpose of scientific experiments was to conduct a comprehensive study of varieties and hybrids "cherry" tomatoes, selection of varieties with valuable biological properties and economic traits, adapted to soil, climatic and environmental conditions of the Bukhara region.

Field experiments were conducted at the experimental plot of the Research Institute according to the methodological guidelines for ecological testing of vegetable crops in the open ground [8].

In conditions of sharply continental climate of Bukhara region for 2 years were tested only 35 varieties and hybrids of cherry tomato of different geographical origin (Holland, China, Russia, Italy), including the variety of cherry tomato Fazilat (standard) released in Uzbekistan.

The main, desirable features of varieties and hybrids are high yield, quality indicators of fruits. Tested varieties and hybrids of cherry tomato are distinguished by their excellent taste, small fruits (from 8.5-10 g to 22-32 g), with a variety of fruit shape (round, ovoid, elongated, flat-round, plum-shaped), long shelf life of products. Under the conditions in the open field of Bukhara region, the tested varieties and hybrids showed good morpho-biological qualities (photo).

Due to its nutritious properties, cherry tomato varieties are especially important for children's food. With the development of tourism in the Republic (cities with ancient history Bukhara, Samarkand, Khiva), it is important to provide restaurants and cafes with high-quality products that meet international standards.

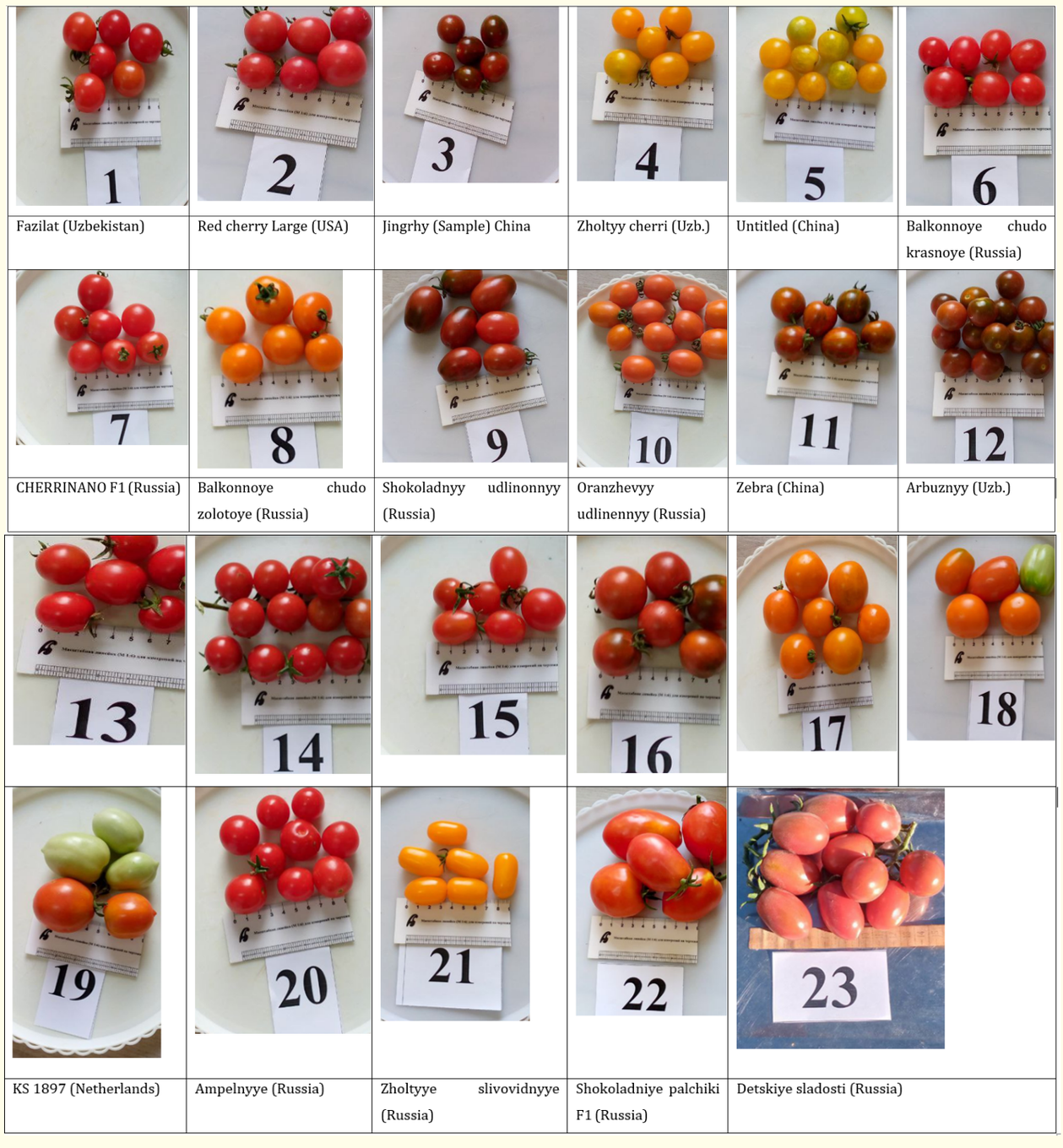

Figure 1: Varieties and hybrids of cherry tomatoes in the Bukhara region of the Republic of Uzbekistan.

Figure 2