

SOURCES OF INITIAL MATERIAL FOR THE SELECTION OF PINK-FRUIT TOMATOES

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The upward trend of increasing consumption of pink-fruited tomato varieties in the past two decades in the Republic of Moldova has become quite stable, which necessitates the creation of a wide range of varieties for cultivation in various conditions. Expanding breeding programs for the creation of commercial pink-fruited varieties and heterotic hybrids of tomatoes with high taste qualities of fruits is possible only with the availability of appropriate initial material.

Therefore, the aim of our research was to search for genetic sources of initial material with pink-colored fruits, different in shape and size, with increased skin elasticity and high taste qualities, while combining high resistance to biotic and abiotic stress factors.

To identify sources with the desired set of breeding traits, more than 200 genotypes were tested, including 35 from the collection of old local varieties, 125 mutant tomato genotypes, and more than 50 variety samples from domestic and foreign breeding programs.

Valuable gene sources were identified (Dikaia Rosa, Mikado, L443, L444, L1454, L1456, Mo 334, Mo 460, Mo 463, Mo 489, Mo 620, Mo 638, La 3539, etc.) with high taste qualities have been identified, which during the filling and ripening period of the fruit have high skin elasticity, showing resistance to cracking even under provocative conditions with unregulated watering. They are also carriers of genes resistant to tobacco mosaic virus (*Tm-2*, *Tm^{2a}*) and other highly aggressive crop diseases (*Frl*, *Asc*, *Cf-13*, *Mi*). The pink-fruited genotypes differed in the type of growth, pattern, habitus, and architectonics of the plants. Of the 32 identified pink-fruited forms, 14 had a determinant type of plant growth. They differed in the weight of the fruit, which ranged from 20 to 350 grams and had rounded, flat-rounded, plum-shaped, pear-shaped and cylindrical shapes. Five genotypes had a semi-deterministic type of growth patterns, while the rest were distributed into a group of indeterminate genotypes with different plant growth rates.

There are also differences in fruit ripening times: ultra-early (85-97 days), early (100-110 days), mid-season (111-120 days), and late (121-132 days). Within each of these groups, genotypes differ in shape, color intensity (light pink, intense pink, cyclamen, and pink with yellow and green stripes), weight, pericarp thickness, and skin elasticity, which does not crack when the plants are grown in both unregulated and drip irrigation conditions. They have been included in breeding programs as donors for the creation of new pink-fruit varieties and F_1 heterotic hybrids of intensive-type tomatoes, which will expand and enrich the market assortment of the Republic of Moldova with pink-fruit tomato products, which are still in short supply but widely in demand.

Significant differences were also found between the identified genotypes in terms of fruit ripening time, from mass emergence to mass ripening: – ultra-early ripening (85-99 days), early ripening (100-110 days), mid-season ripening (111-120 days), and late ripening (121-132 days).

These genotypes also differ in color intensity (light pink, dark pink, cyclamen, and pink with yellow and green stripes) and skin elasticity, which does not crack when grown under both uncontrolled and drip irrigation. The inclusion of these genotypes in breeding will expand the genetic diversity of the tomato cultural gene pool and replenish working collections with valuable genes that control these traits.

Keywords: tomato, genetic resources of pink-fruited forms, quantitative traits, selection

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