



DEVELOPMENT OF AN EARLY-MATURING VARIETY OF CITRUS GRAPEFRUIT (CITRUS PARADISI M)

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Abstract

A new variety of citrus grapefruit was developed by grafting the local pomelo variety "Zaynutdin" onto the lemon variety F-2 Yubileiny under greenhouse conditions, cultivating the plant in a dwarf and compact form. By cross-pollinating maternal and paternal flowers, a new variety named *O'zbekim* was created and introduced into production.

Keywords: Pure line, selection, hybrid, crossbreeding, disease, productivity, cold resistance, young, newly developed, branch.

SITRUS GREYPPFRUT (CITRUS PARADISE M) O'SIMLIGINING TEZPISHAR NAVINI YARATISH

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Annotatsiya

Yangi yaratilgan sitrus o‘simligi greypfruktini pomelo Zaynutdin mahalliy navlari issiqxona sharoitida limoni F-2 Yubileniy naviga kurtak payvandlab past va pakana shaklda o‘stirib, onaliy va otaliy gullarini chatishtirib yangi nav O‘zbegim navi yaratildi va ishlab chiqarishga tadbir etildi.

Kalit so‘zlar: Sof liniya, tanlash, duragay, chatishtirish, kasallik, hosilli, sovuq, yosh, yaratilgan, shox.

Introduction

Botanical and Pomological Characteristics of Grapefruit

Botanically and pomologically, grapefruit is a very close relative of the pomelo, and many botanists consider it to be a variety of pomelo. Grapefruit has not been found growing in the wild, and its exact origin remains unknown. According to scholars, grapefruit may have originated about 200 years ago from the sowing of pomelo seeds in the Antilles, from where it was brought to Florida. It gained popularity there starting from around 1880. However, in the 1930s, a typical form of grapefruit was discovered in an endemic state in Indonesia, where it is much less widespread compared to pomelo. Some researchers even regard grapefruit as a mutant of pomelo. Nevertheless, the majority of scholars support the hypothesis that grapefruit originated as a natural hybrid between pomelo and sweet orange. This theory is supported by the fact that unlike the monoembryonic seeds of pomelo, grapefruit typically produces polyembryonic seeds.

Under the conditions of Uzbekistan, grapefruit grows as a dwarf tree, reaching a height of 2.5 to 3 meters. In warmer regions, however, it grows into a medium to



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tall tree, up to 15 meters high. Grapefruit differs from pomelo in several morphological features, including the absence of fuzz on young shoots, thinner branches, and smaller leaf blades and petiole wings. Its flowers are white, smaller than those of the pomelo, and usually grouped into small corymb-like clusters. Fruits typically form in small clusters of 2 to 5, although single fruits also occur. The fruits are consistently round or slightly flattened and never pear-shaped or strongly flattened like pomelo. When ripe, the skin color is lemon-yellow. The pulp is yellowish, and occasionally pink or red. The pink coloration of the pulp (as seen in the 'Foster' variety) is due to the presence of the lycopene pigment. The taste of grapefruit is consistently mildly or strongly bitter with a quinine-like flavor. It usually contains a large number of seeds (up to 60–70), although seedless varieties also exist. Unlike pomelo seeds, grapefruit seeds are typically polyembryonic and less flattened. In terms of climatic requirements and cold tolerance, grapefruit is more similar to orange; however, it has better resistance to extreme heat and atmospheric dryness compared to orange. Grapefruit thrives in both humid tropical climates and consistently hot conditions. It can also be successfully cultivated in subtropical regions with heat accumulation ranging from approximately 4500 to 4800°C. For example, in the Krasnodar region of Russia, varieties such as Yubileynyy, Marsh Bessemyanny, Sidnee, Gulriiskiy, and Duncan are being cultivated.

In Uzbekistan's climatic conditions, grapefruit is grown in greenhouses as a dwarf tree. While grapefruit grown in tropical regions is often extremely sour in taste, observations from experimental cultivation in Uzbekistan have shown that the fruit has high productivity and a pleasantly sweet-sour flavor.

Conclusion

1. Based on methods used in greenhouse laboratory conditions for breeding, new local grapefruit plant varieties were developed and adapted to the local climate. Additionally, improved breeding techniques were introduced. As a result, a new variety named *O'zbekim* was created — a high-yielding, stress-resistant grapefruit adapted to regional conditions. Through intervarietal and interspecific



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hybridization, grafting, and artificial cross-pollination, promising plant forms were selected. These served as the basis for developing new competitive varieties that are not only disease-resistant but also rich in vitamins and characterized by high productivity and sweetness.

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