

Collection, Conservation and Access to genetic resources of Fruit Crops in Tajikistan

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Tajikistan, along with other Central Asian countries, is the center of origin and diversity of many agricultural crops. This is confirmed by the fact that until now many valuable ancient local varieties of fruit crops, including apple, pear, apricot, walnut, grapes and others are grown on the household plots of the inhabitants of the republic. In their natural habitat, you can find their wild relatives.

スライド 3

- Unfortunately, at present, this unique genetic diversity is under threat of extinction, due to a greater extent to anthropogenic factors - uncontrolled human activities for harvesting wild fruits, felling trees for firewood, grazing livestock.
- Therefore, the protection and enrichment of the existing diversity of fruit crops and their congeners is of paramount importance in providing genetic material for all user groups, including breeders and researchers, gardeners, farmers and others.

スライド 4

- This will help to increase agricultural production, contribute to ensuring food security and environmental stability.
- Local varieties, forms and types of fruit crops have many positive qualities and characteristics. However, they are gradually disappearing or being replaced by new varieties imported from abroad. As a result, our national wealth in the form of the most valuable local varieties is under threat. Therefore, it is necessary to continue activities to preserve them..

- An important goal of the research carried out at the National Center for Genetic Resources in Tajikistan is the collection, replenishment, enrichment, preservation of the gene pool of fruit crops, including rare, valuable local varieties of apple, pear, walnut, as well as less common introduced species, including plum varieties, cherry-plum hybrids, almonds, apricots. Providing access to the gene pool is a priority for the Center.

- Since 2008, surveys have been carried out in various zones of the republic, including in the foothill and mountainous areas, where since ancient times the population has been cultivating apple, pear, walnut and other valuable fruit species. In the course of the survey, promising variety forms are isolated and selected according to a complex of such important economic and biological characteristics as fruit quality, yield, resistance to dangerous diseases, and others. Selected samples of apple, pear, plum were vegetatively propagated in the nursery and planted (fixed) in a pure-bred uterine-cuttings orchard and in collections.

- At present, most of the varieties have entered in the fruiting stage, which allows a step-by-step pomological (morphological) description of the preserved varieties for entry into the database.
- Today, the gene pool of fruit crops growing in the collection of the National Center for Geological Development of TASKHN includes 50 rare local and introduced varieties of apple, 5 pears, 30 plums and its hybrids, 10 almonds and some others.

- In 2008-2012, expeditionary surveys were carried out in the mountainous and foothill zone of Central and Southern Tajikistan, including the Khatlon region - in the Baljuvan, Khovaling, Muminabad districts and in the Rasht zone of Tajikistan.
- As a result, valuable varieties and forms of fruit crops of local origin and less common, rare introduced species were identified and selected, including in the Baljuvan region - 6 apple samples, 1 - grapes (anguri mahalla), 1 - plums (olui kuhi).

- In the Khovaling area, 13 apple samples were selected, including large-fruited rare Kadu seb, Safed seb, Kosimi, as well as beautifully colored varieties - Shokhi seb, Changali and others. In the Muminabad region, 14 local varieties of apple were selected (including Shir seb, Shokhin seb, Khafak) and 2 introduced species (Antonovka, Saffron summer), 2 samples of apricot (Isfarak and Mohtobi).

- The conducted surveys made it possible to identify and select in the former industrial gardens and from the local population valuable, little common varieties of fruit crops of local origin, as well as introduced rare varieties of apple, pear, plum, apricot, grapes, etc.
- Here is a brief description of some of them:

Fig 1. Jugori seb

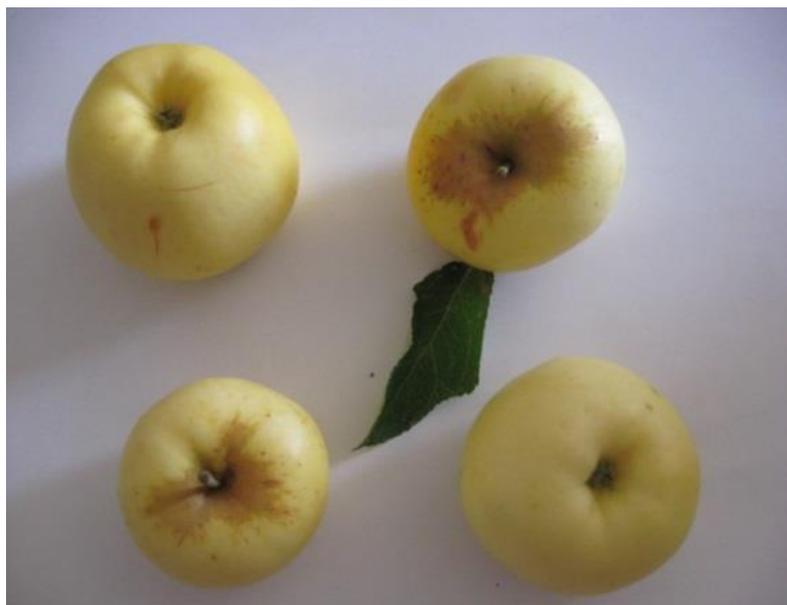


A variety of early summer ripening, fruit weight up to 100 g. Fruit height 72mm, width 59-60mm, medium one-dimensionality, conical, elongated shape. The peduncle is short, of medium thickness, woody, obliquely set. The funnel is sharp-conical, small, no rustiness, the calyx does not fall off, the saucer is small, wide, grooved, the skin is smooth, oily-shiny. The color of the fruit is greenish-yellow, the integumentary color is blurred, striped, throughout the fruit. The blush is pink, with red blotches, the pulp is white, tender, juicy, sweet, aromatic. The quality of the pulp is good, the consistency is tender, crunchy, excellent taste.

Zard Seb

Variety of summer ripening, fruit weight up to 100 g, stalk is short, medium thickness, woody, obliquely set. The funnel is blunt-conical, of medium depth, rusty is weak. The calyx is not falling, closed. The saucer is deep, medium, furrowed, the skin is of medium thickness, smooth, buttery. The color is golden yellow, the integumentary is absent. The pulp is creamy yellowish. There are few subcutaneous points, poorly visible. Seeds are medium in size, dark brown. The pulp of the fruit is tender, mellow, without stony cells, juicy, sweet, with a slight sourness, aromatic, good taste..

Fig. 2. Zard seb



Olui kuhi, Anguri mahalla



Fruiting of the local plum variety Olui Kuhi

The color of the fruits is black, with a bluish bloom on the skin, below average. The skin is of medium thickness, strong, does not crack during transportation. Suitable for table consumption and processing, drying, canning.

... The stone is small, partially fused with the pulp, the pulp is sweet and sour, pleasant taste, juicy, pink.

- The local grape variety Anguri Mahalla is resistant to fungal diseases, has a high yield, early summer ripening period. A medium-sized brush, weighing 250-300 g, dense, winged. The berries are pink, juicy, and have a pleasant taste.

Local apple variety Shokhin seb



Local apple variety Shokhin seb

The variety is early-summer, with fruits with an average weight of up to 100 g, large ones reaching 150 g, fruit height 59 mm, width 71-70 mm, non-one-dimensional, round, broad-conical, slightly ribbed. The peduncle is short, thick, straight, woody, erect. The skin is tender, smooth, oily, shiny. The color is greenish yellow and golden yellow. Integumentary - in the form of a light tan, pink, blurred, striped, on a smaller part of the fruit. The pulp is white, tender, juicy, sweet, aromatic, of good taste.

Kadu Seb



Large-fruited apple variety Kadu spb

- The variety is of summer ripening, the fruits are very large - 160-180 g and above. Fruit height 62 mm, width 78-80 mm. Fruits are slightly ribbed, round in shape, the stalk is short, of medium thickness. The skin is of medium thickness, smooth, buttery. The color is greenish-yellow, the integumentary color is in the form of a light tan, blurred, pink. The pulp is white, tender, of excellent taste, aromatic.

Apple fruits of varieties Surkh seb and Safed seb



Fruiting of the local apple variety Sebi changali.



- In the Muminabad region, 14 local varieties of apple were selected, including Khafak, Shokhin seb, Shir seb, 2 introduced varieties (Antonovka, Shafran early), 2 apricot varieties (Isfarak and Mohtobi). A pomological description of 22 local apple varieties was compiled for entering into the database.

Fruiting of Isfarak and Mohtobi apricot varieties.



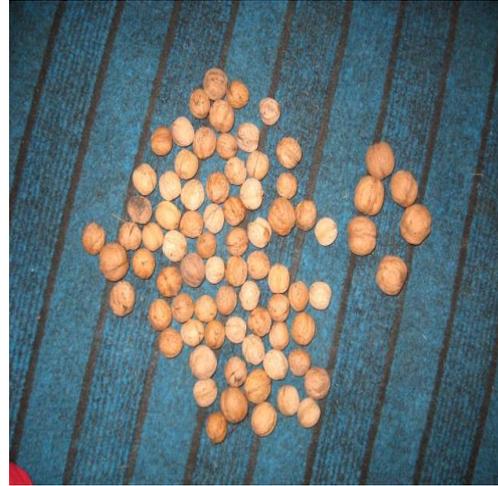
Local apple variety Kosim sarkori



- It has been established that in the Rasht zone, in the village of Khait, local valuable varieties of apricot are preserved, the age of trees of which reaches 50-70 and more years. In the Pakhmdara tract, apple orchards and numerous walnut plantations at altitudes of 1700-2000 m above sea level were examined. The age of young apple orchards in five newly created dekhkan farms is from 10 to 20 years, in which, in addition to introduced species, local varieties of apple trees are planted. A unique garden was revealed on an area of 5 hectares at the age of about 70 years, in which old varieties of apple, pear, cherry, walnut grow.

- A survey was carried out in the Sangvor region to identify local varieties of fruit and nut crops. Based on the results of the work carried out, 5 rare varieties of apple trees of local origin for late autumn and winter consumption, one variety of pear, 3 forms of walnut were selected and described. A survey of local residents revealed that in their gardens and natural plantings there are local varieties of apple trees of summer ripening, fruitful, high taste.
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Fruits of apple varieties Khuboni and Idared, pears - Kure from the Sangvor region. Local thin-crust forms of walnut Hameli and Kogoti (Sangvor)



- A survey of fruit crops planting carried out in Istaravshan, Zafarabad, B. Gafurov and Isfara districts of Sughd region made it possible to select valuable varieties of late ripening plum, almond, peach, apricot and apple trees for the collection, which are fixed in collection gardens.

- Thus, the conducted expeditionary surveys of dekhkan, rental and household farms in Khovaling, Baldzhuvan and Muminabad districts of Southeastern Tajikistan, in the Sughd region in the North of the republic, in the Rasht valley and in the Sangvor region of Central Tajikistan made it possible to identify, select, reproduce and fix in mothers and collections of rare, uncommon and promising varieties of fruit crops for conservation, reproduction and cultivation in various agriculture and household plots of the population in Tajikistan.

Thank you for your attention