



Local Varieties and Forms of Cherry Plum in Nakhchivan Autonomous Republic

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Summary

As a result of the work carried out, the variety and form composition of cherry plums in the Nakhchivan Autonomous Republic was revealed, their economic significance was determined, periods of growth, development, fruiting, and fruit ripening periods in the annual cycle were established in connection with the zonality and climatic conditions of the area. The Nakhchivan Autonomous Republic is the center of the cherry plum culture, where it is currently of an industrial nature, occupying significant areas. The natural and climatic conditions of the Nakhchivan Autonomous Republic allow the cultivation of high-yielding varieties and forms of cherry plum with different fruit ripening periods, from May to August, in all zones of the Autonomous Republic.

The Autonomous Republic concentrated in a wide variety of varieties and forms of cherry plum, which arose under the influence of difficult natural conditions, long periods of cultivation and as a result of folk selection.

Among the varieties and forms of cherry plum discovered in the Nakhchivan Autonomous Republic, diversity was noted in phenotype, physiology and a number of biological characteristics and properties in terms of fruit size, biochemical indicators and dietary qualities. There are sharp differences in the period of fruit ripening, their size and shape, and yield. According to the phenotype, this is a polymorphic crop, found in the form of trees and shrubs.

The data obtained make it possible to identify the most economically promising varieties and forms that satisfy both the requirements of the cannery and are also suitable for fresh use. These include varieties of bunch cherry plum (Goycha, Green), Nevrest, Kyrmyzy cherry plum, Sari (yellow), Govun.

Key words: variety, form, phenotype, polymorphism

Introduction

The cherry plum culture – *Prunus cerasifera* Ehrh. has been known in Nakhchivan for a long time. Favorable natural conditions and gray soils rich in carbonates and almost all microelements make it possible to obtain abundant harvests of this crop every year. Centuries-old national breeding gave dozens of cherry plum varieties with resistance to frost, diseases and pests. Fruits are suitable both for fresh consumption and for the manufacture of canned products and for drying. [7]

In recent years we have studied and found out the groups of little known local varieties of cherry plum, many of which deserve application in the wide production in Nakhchivan as well as in Azerbaijan regions with identical soil and climatic conditions. [4]

The **purpose** of the work was as follows: identification of the distribution of local varieties and forms in certain areas of the lowland, foothill and mountain zones of the Nakhchivan Autonomous Republic through an expeditionary survey; determination of the most valuable local varieties and forms, their propagation for the purpose of further study and creation of source material for use in breeding and replacement of low-yielding varieties; stationary study of the main production and biological properties and biomorphological characteristics of both poorly studied promising local and well-known described varieties and forms of cherry plum in the specific conditions of the region of the republic.

Research objectives: Variety study of standard and selected less common varieties of cherry plum according to their biological and physiological characteristics, selection of the best samples for introduction into plantings and replacement of old low-yielding varieties and forms.

Materials and method of research

The variety study of cherry plum samples was carried out according to the Program and Methodology for Variety Study (Program and Methodology for the Variety Study of Fruit, Berry and Nut Crops.) [8]

The research involved cherry plum trees of different varieties and forms growing in the plots. New varieties and forms were characterized by high-quality fruits, high winter hardiness of the crown and flower buds, differing in different vegetation periods. The phenotype and characteristics of the development of varieties were studied (the onset of the stages of flowering, fruit formation, harvest time, fruit size, taste, biochemical parameters. Sugar content and acidity in fruits were analyzed).

Results and discussion

Based on the research, below is a description of the identified varieties and forms of cherry plum. All of them are distinguished by high yield, winter resistance, and fruits with excellent taste.

Nevrest is very early variety which is widely distributed in Babek and Ordubad districts. The trees are of the average height with the pyramidal crown, they are winter-resistant. The trees are propagated by a grafting of wild cherry plums and almonds. The first fruit bearing season comes on 3-4 year after planting and the bearing of fruits is annual. In accordance with the planting schedule 6x6 m, the yield capacity is 60-65 kilos from one tree, or 165-180 centners per hectare. Maturity stage starts at the beginning of June, earlier on 10-12 days in comparison to the standard variety of Yaz melechi. The fruits are consumed as fresh product and are used for processing. The fruit is of average size (the weight is 14-15 gram), of round shape, the peel is smooth, shiny, the color is green and yellow. The flesh is of yellowish color, tight and have pleasant sweet and sour taste [3].

Bunch cherry plum (Goycha - Green) is local dessert form of chery plum, of early maturation. Due to its consumption in an unripe (green) form, it is called "goycha", which can be translated as "green". It is grown in Babek district and Nakhchivan city. The fruits on the tree are arranged in the shape of a grape bunch. The trees are medium-sized, the crown is slightly blunt apex. The fruit bearing period comes on 3 year after planting and the yield is annual. Each tree yields in average 50-60 kilos and 210 centners per hectare in accordance with the planting shedule 5x5 m. The fruit is beautiful, big (the average weight is 30 gr, the maximum weight is 60 gr), has the oval shape with a blunt top, the fruit stem is short and thick. The peel is tight, moderately fragrant and is of green and yellow color. At full maturity the flesh is yellow, sweet, juicy and fragrant. The stone is small. Generally the fruits are consumed in fresh form in the stage of technical maturity (green). Mature fruits are suitable only for drying. The harvest period comes in the middle of May. The consumer period lasts until the second decade of June. [1,5].



Figure 1. Bunch cherry plum (Goycha - Green)

Kyrmyzy (red) cherry plum. It is widely distributed in all districts of the Nakhchivan Autonomous Republic. The tree is enough tall and has rounded crown. The bark is grey. The annual shoots are thin, slightly pubescent and have brownish color. The fruits are of average size, the weight is 30 gr. The appearance of fruits is very attractive. The flesh is tender, juicy and is not separated from the stone. It is of red color, sweet with slight sour taste, very delicious. This variety is very fruitful. Each tree gives 100-120 kilos. Fruits mature in the end of July. The fruits are often used to make compotes. [4]



Figure 2. Kyrmyzy (red) cherry plum

Sari (yellow) - the local form of the average maturation period. It is cultivated primarily in Ordubad and Julfa districts. The trees are propagated by a grafting of wild cherry plums and almonds. Besides the consumption of fresh fruits and using in processing, the dried fruits are highly appreciated in the national cuisine. The tree is medium-sized, perennial (lives 40-50 years), has wide spherical crown and drooping branches. The tree has enough high frost and drought resistance. The fruit bearing period comes on 3-4 year after planting. Trees bear fruits regularly and abundantly. The yielding capacity is about 250-260 centners per hectare in accordance with the planting schedule 6x6 m, and is far superior to the standard variety of Yaz melechi.

The fruit is beautiful, quite large (its weight is up to 45 gr), has an oval shape. The fruit stem is long, thin and upright. The peel is thin, tight, the color is yellow. Well-lit fruits on the sunny side have a barely noticeable blush. The flesh is yellow, juicy and melting, fragrant, sweet with a light pleasant sour taste. The fruits contain 9-11% of sugar, 1,4-1,6% of organic acids and up to 2,4 % of C vitamin. [3].

Govun is local rare form of cherry plum with late maturity period. It is cultivated in Sharur and in foothills of Babek district. The tree is high with a pyramidal crown, is frost and heat resistant, very durable, lives up to 50 years. It is propagated by rooted cutting and by grafting of wild cherry plum, plum and almond. The fruit bearing season comes relatively early and bears fruits regularly and abundantly.

The fruit is of medium size (its weight is 35 gr), it has the oval shape. The fruit stem is long and of medium thickness. The peel is dense, thin, shiny, intensely yellow in color. The flesh is yellow, tight, fragrant, has medium sweet with melon scent. It contains up to 8% of sugar, 1,2% of organic acids and up to 2,3% of C vitamin.

With feeding area 4x5 m the yielding capacity is 45-60 kilos or 200-300 centners per hectare, and exceeds the standard variety of Payiz melechi for 30-35%. The technical maturity comes at the end of July. The fruits are consumed in fresh form and are used for processing and drying. [3]

Rajabi variety is poorly distributed, it can be found in old gardens of Ordubad district of the Nakhchivan Autonomous Republic. A tree is medium-sized, it reaches 4-6 meters in height, its crown is of pyramidal shape. The shoots are thin of brown and purple color. The leaves are broadly ovate and elliptical in shape with a short tooth at the apex, rounded at the base. The leaf blade is rude with prominent veins. The edge of a leaf is crenate. The fruits are big, their weight reaches up to 30 gr. The shape is flat-rounded. The top is flat, slightly sloped, the apical point with small hole. The peel is thin but thick and is poorly separated from the flesh. It has yellow and green color. The flesh is not separated from the stone, it is of medium density, has yellow and green color, juicy, sweet, fragrant with very good taste. This variety has very good yielding capacity and each tree gives 80-100 kilos. The fruits mature in the middle of August and are valued as a table variety. [4]



Figure 3. Rajabi

Tabarza variety is currently rarely found in gardens of Ordubad district. The tree is of medium height up to 5-6 meters in height. The crown is rounded paniculate, thick and branches of old trees are hanging down. The bark is grey. One year shoots are thin, dark, have brown and green color and thick velvet cover. The fruits are of medium size, the weight is up to 25 gr, they are flat-rounded and symmetrical. The peel is thick, tight, almost separated

from flesh. It has pale green color and usually is covered with numerous triangular rusty spots. The flesh is of yellow and green color, has gently fibers. It is very juicy, sweet and has sweet and sour taste near the stone and almost without flavor. In immature form the flesh is tight, gristly, has sweet and sour taste, is quite edible. It is propagated by grafting of wild cherry plum and almond.

The trees have good yielding capacity (80-120 kilos from each tree). The maturity comes in the middle of August. This variety is very valuable for jams, compotes and other canned products and is also used in fresh form. [5] All these 7 varieties can be used as promising and replace existing low-yielding varieties.



Figure 4. Tabarza

Conclusion

The conducted researches of comprehensive study of cherry plum in the Nakhchivan Autonomous Republic allow to conclude the following:

1. The Nakhchivan Autonomous Republic is the center of cherry plum cultivation and at the present moment it is of industrial character and occupy considerable areas.
2. The natural and climatic conditions of Nakhchivan AR allow to cultivate the high-yielding and high-quality varieties and forms of cherry plum with different terms of fruit maturity in all zones of the republic beginning from May and until the end of August.
3. The Autonomous Republic concentrated in a wide variety of varieties and forms of cherry plum, which arose under the influence of difficult natural conditions, with hot summers and cold winters, long-term cultivation and folk selection.
4. Among all varieties and forms of cherry plum which were found in Nakhchivan AR it was noted the sharp differences in the complex of characteristics and properties, such as: timing of flowering, fruit ripening, their size and shape, taste, color, yield and others. The differences are found in many other characteristics such as size, crown shape, flower color, dietary qualities.
5. The data obtained make it possible to identify the most economically promising varieties and forms, universally intended, satisfying the requirements of both canning production and suitable for fresh consumption.. These include such varieties as Nevrest, bunch cherry plum (Goycha and green), Kyrmyzy cherry plum, Sari (yellow) and Govun.
6. Analyzes were carried out in comparison with standard varieties currently common. As a result, seven new promising varieties were identified.

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