MORPHOLOGICAL AND BIOCHEMICAL PARAMETERS OF UNABI (ZIZIPHUS JUJUBA MILL.) PLANT

Turobov Fazliddin Bahrom ugli
PhD student, Scientific Research Institute of Plant Genetic Resources
Email: fazliddinturobov@gmail.com
https://doi.org/10.5281/zenodo.8176444

Abstract: In the article, the data on the morphobiological and biochemical indicators of the unabi (Ziziphus jujuba Mill.) plant are presented with an in-depth analysis.

Key words: unabi, fruit, biochemical indicators, morphology, branching, phenology, useful content.

The inevitable result of the development of civilization is a steady decrease in the consumption of natural food products, an increase in the share of processed products, an increase in the use of food additives, and contamination of food with potentially dangerous compounds. The lack of fruits, vegetables and berries in the diet, their uneven consumption throughout the year leads to a lack of vitamins, trace elements and other biologically active substances.

Unabi is a plant with many name variants. This plant is also known as jujube, Chinese persimmon, jojoba (or jujube), jujube, anab, chilion, chai-lon, jida, zao, yanap, arnap, ylan jida, and breast berry. The genus Unabi itself includes about 50 species that grow mainly in the tropics and subtropics, but according to archaeological and paleontological excavations, in the distant past it grew in the south of Greenland. Now wild unabi can be found in China, Manchuria, Mongolia, Turkmenistan, Uzbekistan and partly in Tajikistan.

A deciduous tree up to 9 m tall, with a spreading or wide and strong root system that forms root buds, thanks to which it can also be grown in the form of a spherical bush. The buds of young trees are covered with thorns, but with age, the thorns gradually disappear. The leaves are ovate.

Unabi bears fruit on annual green (woodless) branches formed by buds. Fruits ripen in late September - early October.

The fruits themselves usually resemble olives in shape, but different varieties can be different: spherical, cylindrical, glassy, pear-shaped, etc. Fruit size reaches from 1 to 4-5 cm in diameter. The fruits are red-brown (depending on the variety, from red and light brown to dark chocolate). Sometimes they are seedless. The taste ranges from very sweet to sweet and sour. The pulp of the fruit is dense or soft, and during the ripening period, the fruits are compressed and have a specific smell. Unabi is drought-resistant, heat-resistant and at the same time relatively cold-resistant (the tree can withstand thirty degrees of frost, but it requires a sum of high active temperatures to produce fruit), the soil is not picky.

Figure 1. General view of Unabi (Ziziphus jujuba Mill.) plant

Unabi fruits are similar to dates, they can be used both fresh and processed, but they are believed to be tastiest after a short drying in the sun (they can be stored for a year). Dried fruits can be used to make flour. Unabi is rich in ascorbic acid, proteins, sugars and acids. The fruit contains vitamins (vitamin A, vitamin B, vitamin C, β-carotene), amino acids, trace elements, fats, organic acids (malonic, tartaric, etc.), sterols, coumarins, flavonoids (kaempferol, myrsetin, etc.), triterpenes and triterpenes and triterpentulolenolic acids (triterpenetulolinic acid). Unabi fruits are useful for diseases of the upper respiratory tract and lungs, it is not for nothing that one of the names of unabi sounds like "chest berry". In China, the decoction and infusion of unabi fruits is used as a diuretic, and in Central Asia, it is used for many infectious diseases and as a means of normalizing blood pressure. Fruits can also be used as a tonic and sedative. Unripe fruits have an astringent effect, ripe fruits have a mild laxative effect.

The leaves contain taste-altering substances (zisifins, gymnemic acids), which temporarily paralyze the perception of sweet and bitter tastes when chewed, resulting in the loss of the ability to feel sweet, sharp and bitter tastes for a certain period of time. After that, the sugar tasted is considered tasteless. At the same time, the ability to feel salty, sour and pain is fully preserved. This property of the leaves was formerly used in the prescription of some bitter drugs, particularly quinine, in the treatment of malaria.

Unabi in Uzbekistan has the following sequence of phenophases: budding, flowering, fruit pigmentation, fruit ripening and the beginning of leaf fall.

Bud opening occurs primarily in well-lit main buds, when the average daily air temperature is 12-13 °C. In perennial "rings", the buds bloom a little later than the main buds. Unabi flowering begins in June and lasts an average of 33-36 days. Due to its late flowering, unabi does not experience the late spring frosts that other fruit crops

can experience. In Uzbekistan, unabi fruits ripen in October. Falling of leaves is observed at the end of October, after mass ripening of fruits. Its duration is 10 days. The average vegetation period of Unabi is 150-200 days.

References:

1.Mahajan R., Chopda M. Phyto-Pharmacology of Ziziphus jujuba Mill-A plant review //Pharmacognosy Reviews. – 2009. – Т. 3. – №. 6. – С. 320.
2.Ji X. et al. Isolation, structures and bioactivities of the polysaccharides from jujube fruit (Ziziphus jujuba Mill.): A review //Food chemistry. – 2017. – Т. 227. – С. 349-357.
3.Cheng G. et al. Flavonoids from Ziziphus jujuba Mill var. spinosa //Tetrahedron. – 2000. – Т. 56. – №. 45. – С. 8915-8920.
4.Gao Q. H., Wu C. S., Wang M. The jujube (Ziziphus jujuba Mill.) fruit: a review of current knowledge of fruit composition and health benefits //Journal of agricultural and food chemistry. – 2013. – Т. 61. – №. 14. – С. 3351-3363.
5.Tripathi S. et al. Ziziphus jujuba: A phytopharmacological review. – 2014.
6.Zhao Z., Liu M., Tu P. Characterization of water soluble polysaccharides from organs of Chinese Jujube (Ziziphus jujuba Mill. cv. Dongzao) //European Food Research and Technology. – 2008. – Т. 226. – С. 985-989.
7.Tojiboyev M. U. et al. The place and medicinal properties of certain species of the genus of Achillea in Uzbekistan plant coverage //European Scholar Journal. – 2023. – Т. 4. – №. 1.
8.Menglikulovich A. S. et al. RESTORATION OF SEED FERTILITY IN ORDER TO RENEW THE SAMPLES OF VEGETABLE CROPS STORED IN THE GENE POOL //American Journal of Interdisciplinary Research and Development. – 2022. – Т. 8. – С. 91-95.
9.Буриев Х. Ч. САБЗАВОТ ЭКИНЛАРИ СЕЛЕКЦИЯСИ, УРУҒЧИЛИГИ ВА КЎПАЙТИРИШ УСУЛЛАРИ ФАНИНИ ЎҚИТИШ УСЛУБИЁТИ //Scienceweb academic papers collection. – 2022.
10.Кадирова Д. Н. и др. ПРЕИМУЩЕСТВА ПРИВИВАНИЕ ПЛОДОВЫХ ДЕРЕВЬЕВ //Экономика и социум. – 2019. – №. 3 (58). – С. 202-204.