

Biomorphological Properties of Black Locust Tree (*Robinia Pseudoacacia L.*) Seeds Producing Herbal Honey

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ABSTRACT

The research presents the outcomes obtained in the study of the biomorphological properties of seeds of black locust, relating to the legume family. Black locust seeds were collected in 3 remote areas, including from the Tashkent Botanical Garden, from the Burchmulla forestry, and from the territory of the Tashkent State Agrarian University. The importance of black locust for forests is huge, therefore, the study of the biomorphology of its seeds during the reproduction of this species will become the basis for the creation of high-quality acacia forests in the future. Along with the study of the seeds of the species, the pharmacology of white acacia and the content of substances in the nectar was studied. It is one of the best trees for honey production, white acacia honey is transparent, fragrant and does not crystallize for a long time. One tree gives about 14.7 kg of honey. Flower nectar contains 30.83% fructose, 0.32% glucose, 68.85% sucrose, and the proportion of total sugars (according to a refractometer) is no less than 40 and no more than 70.

To create forests from high-quality seeds, the preparation of seeds for sowing and the optimal sowing time has been determined.

KEYWORDS: *black locust, seed, sowing time, nectar, medicinal, honey, seed morphology.*

Introduction. In our country, great attention is paid to scientific research on the production of highly effective, harmless drugs based on medicinal plants for the treatment of various diseases. In this regard, it is important to develop technology for the production of medicinal honey-based drugs for various diseases, reduce the share of drugs imported from abroad and increase the number of products manufactured by local pharmaceutical companies.

The creation of forage areas in beekeeping begins with the process of growing forest seedlings. At the same time, the selection of trees and shrubs that produce large quantities and quality of medicinal honey affects not only the content and size of the plantation, but also its economic efficiency.

In the cultivation of honey-bearing tree and shrub seedlings - a complete study of some features related to the biology of these species, the correct application of agricultural techniques, standard seedlings in a short time and at the lowest cost helps to grow materials.

Forests such as Ranoguldoshlar, Zarangdoshlar, Dukkakdoshlar, which form the basis of beekeeping forages, are the main natural species in the forest fund of the republic, but local members of this family produce less honey than the introduced species. Therefore, it is advisable to reproduce some of the introduced species. One such species is the white acacia tree.

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White acacia (*Robinia pseudoacacia* L) belongs to the family of legumes, deciduous tree up to 30 m tall, 30-40 cm in diameter, branched, transparent, with an open crown, consisting of separate layers. The bark is dark gray, with longitudinal cracks, gray-brown at a young age. Bare, greenish-gray or reddish-brown, thorny. The leaves are alternate, 7-19 leaves have an elliptical shape. In spring they are green, silky-haired, in summer they are dark green, sometimes yellowish, the underside is shiny, flat. The flowers are white or slightly pink, fragrant, up to 20 cm, clustered. White acacia blooms very beautifully in late May - early June (Fig. 1). The best tree for giving honey, white acacia honey is transparent, fragrant and does not crystallize for a long time. One tree produces up to 14.7 kg of honey. The honey yield of plantations in his homeland sometimes reaches 1,000 kg per hectare. Flower nectar contained 30.83% fructose, 0.32% glucose, 68.85% sucrose, and the proportion of total sugars (according to the refractometer) was at least 40 and maximum 70. The pollen yield of 100 flowers is 172 mg and the whole plant can produce up to 26.5 grams of light yellow pollen. Seeds and flowers contain up to 12% essential oil.

Pharmacological properties. In the study of the pharmacological properties of drugs based on white acacia, a clear diuretic and hypoazothermic effect was identified. In addition, acacia flowers have antispasmodic, hypotensive, expectorant, antipyretic, hemostatic, anti-inflammatory, astringent and diuretic properties. Acacia oil has a pronounced rheumatic, insecticidal, enamel and antiseptic effect. Therapeutic properties are characteristic of acacia honey, which contains large amounts of fructose.

In folk medicine, white acacia flowers have long been used in the treatment of diseases of the gastrointestinal tract, inflammatory processes of the kidneys and bladder, kidney and urolithiasis, thrombophlebitis, radiculitis, myositis, osteochondrosis, rheumatism, neuralgia, colds. Antispasmodic, anti-spasmodic, diuretic, expectorant and antipyretic agent. Tincture of acacia flowers is used for rheumatism. In addition, in cosmetology, white acacia essential oil is used in addition to creams and lotions to care for sensitive and dry skin.



1-picture. The flowers of white acacia

Research style. September-October is the best time to harvest white acacia (*Robinia pseudoacacia* L) seeds. The morphological sign of seed ripening is the formation of a fruit with a liver. However, the best time to harvest white acacia seeds is when the color of the fruit has not yet dried, turning from green to brown. Autumn sowing is carried out with dry seeds. Seeds for sowing in the spring require initial preparation, because its seeds have a dense, hard shell. For rapid germination the seeds need to be prepared before sowing: soaking in hot water, the effect of stimulants, etc. The most

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optimal method for production is soaking the seeds in hot water (40-60°C). After sowing, the seeds increase in size by 1.5-2 times. Seed germination occurs in 10-12 days. Seed germination rate increases to 94%.

Research results. Harvesting of white acacia seeds is carried out in any way that ensures the safety of the tree and workers, as well as next year's harvest. In winter, the seeds can be harvested. However, it is not recommended to harvest the remaining fruit on the trees in the second half of the winter as their germination is reduced.

Seed quality is determined in accordance with GOST 13056.8-97. The quality of seeds of the first grade should be at least 85%, the second - 70%, the third - 55%. The purity of white acacia seeds should be at least 94%. Yields of white acacia seeds vary by region. In particular, Burchmulla accounted for 99.7% of the forestry, 97% of the trees in the Tashkent Botanical Garden and the Tashkent State Agrarian University. The average weight of 1000 seeds was 24 g in Burchmulla forestry, 17.3 g in Tashkent Botanical Garden and 21 g in Tashkent State Agrarian University

Table 1. Morphological characteristics of white acacia fruits and seeds collected from different regions

№	The place where the seeds are harvested	Fruit diameter mm	Fruit weight gr	Weight of 1000 fruits gr	Fruit band length mm	Number of seeds per 1 kg of fruit, pcs	Seed yield per 1 kg of fruit%	Seed length mm	Seed width mm	Weight of 1000 seeds gr
1.	Burchmulla Forestry	13	0,18	180	60	5555	53,3	3	2	24
2.	Tashkent Botanical Garden	15	0,27	270	100	3703	52	5	3	17.3
3.	Tashkent State Agrarian University	15	0,30	294	90	3401	50	4	3	21

White acacia seeds for planting in the spring of 2021 were dried before planting, then peeled and cleaned by hand. They were stored in bags in a well-ventilated room. Humidity should not exceed 60% during storage. The seeds were soaked in hot water for 15 minutes, then pre-soaked in cold water for 5 minutes to soften the hard part of the seed that prevents swelling and germination. The seeds were scarified to soften the waterproof seeds. The bark was mechanically treated, the surface was scratched and rubbed, and then the seeds were ready for sowing.

Conclusions and recommendations. White acacia does not choose soil, so it is suitable for almost any soil, only excessive watering is not recommended.

Seeds of white acacia seeds of the first quality class are sown at a rate of 3-4 g per 1 m. They are sown in prepared places at a depth of 2-3 cm, usually in rows - the distance between the seeds is recommended to sow 1-2 cm, row spacing 20 cm. White acacia seedlings grow very fast and are suitable for creating forest crops at the age of one. It should be planted to a permanent place in the

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spring or late fall next year, if planted too close, the roots will be tied together and it will be difficult to transplant the plant.

Acacia seedlings are transplanted in the open without separating them from the root soil. In this case, the tree will take root better and will be less sick. After planting, pay attention to the root collar (it should be level with the soil or slightly higher). If the seeds are buried deep in the ground, they may rot or the acacia will begin to stagnate. After planting, the soil should be watered. More watering in the first week after planting has a beneficial effect on the retention rate and growth rate of the young plant. But keep in mind that wet roots can rot, so over-watering is not recommended.

To get white acacia planting material faster, it is recommended to sow high-quality seeds harvested in time for spring sowing in hot water.

References:

1. Jurayev J.M., Xalilova K.A., Baratova M.B. Oq akatsiya (*Robinia pseudoacacia* L) ning bioekologik xususiyatlari va ularning asalarichilikdagi ahamiyati. "O'simliklar seleksiyasi va urug'chiligini innovatsion texnologiyalar asosida rivojlantirishning nazariy va amaliy asoslari" Xalqaro ilmiy-amaliy materiallari to'plami. Toshkent 2021.
2. Жураев Ж.М., Халилова К.А., Махмудова Г.Б. Биоэкологические особенности и медоносность видов софора, акация и липа. Сборник научных трудов «Наука и инновация» Ташкент 2020.
3. Гринкевич Н.И. и др. Лекарственные растения: Справочное пособие. / Под ред. Н.И. Гринкевич – М.: Высшая школа, 1991. – 398 с.
4. Губанов, И. А. и др. *Robinia pseudoacacia* L. – Робиния лжеакация, или Белая акация // Иллюстрированный определитель растений Средней России. В 3 т. М.: Т-во науч. изд. КМК, Ин-т технолог. иссл., 2003. Т. 2. Покрытосеменные (двудольные: раздельнолепестные). С. 461.
5. O'zbekiston Respublikasi Prezidentining 16.03.2017 yildagi "Respublikamizda asalarichilik tarmog'ini yanada rivojlantirish chora tadbirlari to'g'risida" gi PQ-3327-sonli qarori.