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BIOLOGICAL FEATURES OF THE HIGHEST AILANTHUS (AILANTHUS ALTISSIMA (MILL.) SWINGLE) IN THE CONDITIONS OF TASHKENT

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Abstract

Ailanthus altissima (Mill.) Swingle is a popular tree used in many countries in landscaping, food for wild silkworms, valuable honey plant and also as a phytosanitary. This tree has successfully acclimatized in Europe, Russia and Uzbekistan. Many scientists consider it a dangerous invasive species. Ailant the highest is widely used in Chinese medicine, since all its organs contain biologically active substances - tannins of various nature, alkaloids, saponins, lactone simarubin, coumarin heteroside, sterols, bitter substances, in particular, the unique substance ailantin.

Keywords: ailant deciduous tree, landscaping, decorativeness, green building, biology, ecology, medicinal properties, drought resistance, root suckers, biologically active substances.

Introduction. Ailanthus altissima (Mill.) Swingle) is a deciduous tree of the genus Ailanthus, Simaroubaceae family. The homeland of the highest ailant is North China, where the tree has long been cultivated for breeding ailant silkworm. Unlike other members of the genus Ailanthus, Ailant the tallest grows in temperate climates, not in the tropics. The tree grows rapidly and can reach a height of 15 meters in 25 years [2, 3, 5].

In China, the sky tree has a long and rich history. It has been noted in the oldest extant Chinese dictionary and listed in countless Chinese medical texts for its supposed ability to heal diseases ranging from mental illness to baldness. The roots, leaves and bark of Ailantha talus are still used in traditional Chinese medicine, primarily as an astringent. The tree is widely cultivated as in China [4, 6, 7].

Aylant the highest was the first brought from China to Europe in 1751, in Russia - in 1809. In the Crimea, this tree since 1814. Ailant saplings were brought from Osnovyansky garden in Kharkov region and planted in Nikitsky botanical garden by X. X. Steven [8].

There are about 15 (according to other sources, about 10) species of Ailants on the globe. They are found in Japan, China, India, Australia, and the Moluccas. This plant has many names. Under the name of the vinegar tree it appears in the works of the Russian botanist S. S. Stankov; in Ukraine they call him a stinker and a chumak; on the Moluccas - ailant, which means a tree paradise, or God's tree. The correct scientific name for the most common ailant is Chinese ash, or the highest ailanth.

The import of ailanth to Russia was dictated by purely economic goals, when it became known that silkworms were fed with ailant leaves in India, Japan and China, which give cocoons woven from the most delicate silk threads. These threads are known to serve as raw materials for producing natural silk. The first experiments were carried out when a more or less sufficient amount of ailant grew up in the Crimea and the Caucasus. The experiments turned out to be successful, but then the business for some reason stalled and the production of ailant silk stopped [1].

Materials and methods

In the conditions of Tashkent, Ailant is the highest, undemanding to soil and drought-resistant and also withstands groundwater. Ego can be found in many places that is not artificially watered, Ailanthus also forms abundant root suckers. In many places, it forms thickets along roads, along ravines and also near abandoned buildings (Fig-1).

Ailant is the tallest fast-growing and rather aggressive tree, resistant to pests and diseases. By the age of 20, it reaches 15 meters in height and a trunk diameter of 40 cm. At 80 it grows up to 25 meters, and lives up to 100 years. Root shoots grow amazingly quickly, which in one year can fill all the free space. If there is enough rain in the spring-summer period, the shoots stretch up to 2-5 meters per season, and the leaves reach a meter in length.

Fig-3. Thickets of Ailanthus the highest (Ailanthus altissima (Mill.) Swingle) grown by root suckers

The wood of the ayllant has an unusual white color with a pale pink tint, and therefore it is used for the production of joinery and decorative crafts. It is also used for the manufacture of high-quality white paper. All ailants are slender, tall (20-30 m.) Trees with dark gray, beautiful bark pattern and long (up to 60 cm) feathery, palm-like leaves (Fig-2).

Fig-2. Upper part of composite leaf Ailanthus highest (Ailanthus altissima (Mill.) Swingle)

The flowers are bisexual and staminate (male), small, yellowish green in large panicles, 10-20 cm long. Male flowers have an unpleasant odor. Lionfish fruits 3-4 cm long are light reddish brown in color. One-year-old shoots of pneuma shoots reach a height of 2 m.A very

fast growing tree reaches a height of 4-5 m at 5 years old. salt marshes, but it develops best on deep loamy, fairly moist soils. The yellow-green flowers are small and inconspicuous. The fruits ripening at the end of summer - brightly colored yellow, pink and red lionfish - stand out sharply against the background of dark green foliage (Fig-3).

Fig-3. Male-flowered inflorescences and leaf segments and fruit.

The crowns of trees raised high above the ground at this time are very distinctive and beautiful. Ailants are extremely warm and light-loving, salt-tolerant, not demanding on soils, they tolerate drought easily, survive where all other trees die - in the immediate vicinity of coal mines, in abandoned buildings, along roads and streets.

A seed tree in favorable conditions can grow 2-3 m in a year, and if it is a growth from a stump, then in a month a separate shoot will reach one and a half meters in length. The ailant's ability to regenerate overgrowth is amazing. In the sixties, on the territory of the Karadag biological station, a site occupied by ailant was cut down, the site was leveled and covered with a thick layer of asphalt. A year later, the asphalt rose like a "fur coat", and thick pinkish shoots emerged from the cracks and faults [1].

Outside of Europe and the United States, Ailanthus was distributed in many other areas outside of its natural range. In a number of these, it has become an invasive species due to its ability to both quickly colonize disturbed areas and to suppress competition with allopathic chemicals. Islant is considered a noxious weed in Australia, the United States of America, New Zealand and many countries in central, eastern and southern Europe.

Research results and their discussion

Ailant is not used in official medicine, as it is poisonous, but the roots, fruits and leaves of this tree are widely used in folk medicine. In the 70s of the last century, a tincture of ripe or dried fruits was used in the manufacture of the drug "Anginol" ("Echinora"), which was intended for the treatment of angina [9].

The leaves, bark, roots and wood of ayllant contain tannins of various natures, alkaloids, saponins, lactone simarubin, coumarin heteroside, sterols, bitter substances, in particular the unique substance ayllantin.

In homeopathy, flowers, bark and shoots are used for scarlet fever and diphtheria, for urolithiasis, and the fruits are used for cholelithiasis and kidney stones. In official Chinese medicine, the leaves of the tree are used as a powerful anti-viral and insecticidal agent.

Preparations and decoctions of the highest ailant are contraindicated in case of individual intolerance to plant components, with allergies to plants, during pregnancy, breastfeeding and in childhood.

The seeds, infusions of the bark and leaves of this tree are poisonous in large quantities, so it is very important to follow the recommended dosage. The leaves and bark of ailant have a strong irritant effect, so when caring for this tree (in particular, when cutting branches), an allergic rash may appear on the hands and even the face.

Conclusions

Thus, the cultivation of Ailant the highest (Ailanthus altissima (Mill.) Swingle) for economic, medicinal and especially landscaping purposes in the arid places of Tashkent is very effective. It is known that silkworms are fed with ailanth leaves in India, Japan and China, which give the most delicate silk threads. Due to this, in the conditions of Tashkent, it is also possible to use ailant leaves in order to feed silkworms, which give cocoons, which can be obtained from the most delicate silk thread.

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