



Antecology and seed biology of false chestnut (*Aesculus hippocastanum* L) under thermal conditions

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ABSTRACT

This article provides information on environmental protection activities in our republic, false chestnut, the antecology and seed biology of false chestnut (*Aesculus hippocastanum* L) in Termiz conditions.

Keywords:

Environment, false chestnut, bark, seed, fruit, climate, cultivation

Ensuring the implementation of the Decree of the President of the Republic of Uzbekistan "On approval of the concept of environmental protection of the Republic of Uzbekistan until 2030" dated October 30, 2019 No. PF-5863, state The decision of the Cabinet of Ministers was adopted in order to further improve the procedure for the use of trees and shrubs on lands not included in the forest fund.

According to it, starting from March 1, 2020, in the project documents for construction, renovation, restoration, capital repair, beautification and demolition of construction objects, as well as in the acceptance of construction objects for use, plant measures that ensure the prevention of negative impact on the world's objects and their growth environment, protect them from such impact, compensation measures and greening measures based on the rules and norms in this field are provided.

Chestnut (*Castanea*) is a group of woody plants belonging to the birch family, a nut-bearing and ornamental tree. It is distributed in North America, East Asia, Mediterranean coasts, Morocco, Tunisia, Caucasus regions. 14 species are known to science, mainly 4 species are cultivated. Chestnut lives up to 500-1000 (in some regions 3000) years. Chestnut (*C.sativa*),

a perennial plant, grows in the Black Sea and Transcaucasia, in the lower and middle regions of the mountains. It is 35 m tall and 2 m in diameter. The branches are wide, the leaves are simple, large, 12-25 cm long, with short bands, arranged alternately. Blooms after leafing. The flowers are small, the inflorescence is lanceolate, unisexual or bisexual, the male flowers are located at the top of the inflorescence, and the female flowers are located at the bottom. The fruit is a nut (chestnut), dark brown. Each contains 1 seed. After the tree is planted, it bears fruit in 5-10 years. Light-loving, moisture-loving, heat-loving. The fruit ripens from September to November. One tree yields 120-140 kg. Chestnut fruits are eaten boiled, fried and dried. Nut kernel contains 60% starch, 17% sugar, 8-11% nitrogenous substances, 2% oil, vitamins, citric and malic acids. There are 6-14% tannins in the wood, bark, and leaves. Honey obtained from its flowers has a unique aroma. Wood is used in wine barrels, plywood, furniture, carpentry, shipbuilding, construction. Various dyes are made from the bark. There are several varieties of chestnut. Small-fruited Lyon and Neapolitan varieties are more widespread. In Uzbekistan, there is only one species of it, known as horse chestnut (chestnut *konsky*)

(the nut cannot be eaten), it is cultivated as an ornamental tree. Chestnut is propagated from seeds, some varieties are grafted.

Horse chestnut - (*Aesculus hippocastanum*) - a deciduous tree with a height of 30 m and a trunk diameter of up to 1.5 m. The bark of the horse chestnut is light brown, layered. The leaves are large, long-stalked, palm-shaped, and consist of 5-7 leaves. The leaflets are tufted, wedge-shaped at the apex, toothed at the tip, glabrous above, and covered with soft hairs along the veins below. The flowers are white, large, irregular (zygomorphic), with yellow, then pink or reddish spots on the base of the leaves. At the beginning of flowering, they get the maximum amount of nectar. It is at this time that they are visited by lovers of sweet tooth - bees and butterflies. Horse chestnut blooms in May. The fruit is a box covered with thorns, which usually splits into three wings. Inside, there is a large seed, 2-3 cm long, in a hard-skinned dark brown pod. The tree bears fruit at the age of 15-20, lives up to 350 years. The fruits look a little like berries, but are not edible, so this tree is called horse chestnut.

It grows in the Balkan Peninsula (Greece, Bulgaria) at an altitude of up to 1200 m above sea level. In culture, it is widespread not only in the subtropics, but also in the temperate zone of the Northern Hemisphere, in areas with a humid and hot climate. In Russia, it can grow up to the width of St. Petersburg. Bark, leaves, flowers and fruits of young branches are collected to prepare medicine. The bark is collected from 3-5-year-old branches during the sap flow, cut into pieces and dried immediately after collection. Flowers are harvested in May. The leaves are spread in late June - early July, without cuttings, in a thin layer under an umbrella or in a room with good temperature. This type of raw material is exported. Fruits are collected at full maturity, when they fall from the valves. It is harvested by hand and dried in dryers at a temperature of 50-60 °C.

Pharmacological properties. Experimentally, the alcoholic extract of the fruit has anti-inflammatory and analgesic properties. Reduces blood viscosity, strengthens capillary walls, lowers blood pressure, blood cholesterol,

etc It normalizes the amount of lecithin. It reduces the formation of cholesterol and lecithin in the blood. In addition, the extract is known to constrict blood vessels and act as a pain reliever. Usually, ready-made pharmaceutical preparations of escusan and esflazid are used. The seeds in the fruit contain coumarin glycosides, triterpene saponin essin, fatty oil (up to 5-7%), proteins (up to 10%), starch (up to 50%), tannins (about 1%). Glycosides, tannins, sugars, ascorbic acid (vitamin C) and other compounds were found in the bark. The leaves contain glycosides, pectins and carotenoids. Flowers are rich in flavonoids, tannins, pectin and mucus.

The following medicinal plants are grown in forests and specialized farms located in different regions of our republic: quinine tree, coca bush, aloe species, orthosiphon, dichroa, olive, sano (cassia) species, Mexican bangidevona, kalanchoi species, shy mimosa, dark red passiflora, rauwolfia species, false chestnut, salora, pink catharanthus (borigula), round-leaved *Stephania*, eucalyptus species, ginkgo, ituzum, chamomile, calendula, pol-pola, topinambur and others. These works have not been completed, in the future, the introduction of new plants to our Republic and acclimatization to local conditions are being planned. the cultivated plant product does not contain any admixture of foreign plants. Plants grown on the basis of agrotechnical rules are fertile and rich in biologically active substances and have high productivity. It is possible to increase the productivity of planted plants and the amount of biologically active chemical compounds in them by selecting plant species, selecting high-yielding forms and types, and creating hybrids through cross-breeding. plants are called endemic, they appeared in this soil and are typical for this area. Today, our scientists recommended more than 50 plant species to the city of Termiz. These plants are resistant to heat and drought.

In the last 5 years, planting of catalpa tree, which is suitable for the climate of Surkhandarya Khorezm and Karakalpakstan, has started.

Only those trees adapted to the climate of Uzbekistan will survive. Oak, maple, and poplar

are planted in abundance in the Surkhandarya oasis. In the city of Termiz, Surkhandarya region, recommended plants such as Tashkent chetalpasi, chestnut, camel were planted. When planting trees, the salinity of the soil, sufficient water, whether it is a sandy or rocky area are taken into account. For example, it becomes difficult for a plant to grow on rocky ground. It is recommended to plant marsh cypress and metasequoia on well-drained lands.

In conclusion, it should be said that all parts of horse chestnut contain medicinal substances. Therefore, it is used scientifically and industrially.. Herbal preparations of horse chestnut are also widely used in folk medicine. The juice of its flowers is drunk for varicose veins (thrombophlebitis), atherosclerosis and hemorrhoids. Alcohol-preserved flower juice and tincture of flowers or fruits are useful for thrombophlebitis and hemorrhoids.

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