



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

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ABSTRACT

This article provides information on the antecology and seed biology of the false chestnut (*Aesculus hippocastanum* L), the formation of seeds enclosed in a longitudinal fruit capsule, and its biological structure and benefits for human life.

Keywords:

False chestnut, Seed, big tree, series, inflorescence, cypress, paternity

False chestnut (*Aesculus hippocastanum* L.), also known as horse chestnut, is a deciduous tree native to the Balkans and western Asia. He got acquainted with different countries of the world, including Europe, North America and Australia. It is often grown as a shade tree or ornamental tree in parks and gardens.

False Chestnut Antecology:

Ecologically, the false chestnut tree is well adapted to a wide range of soil types, although it prefers well-drained soils. In addition, it tolerates urban pollution and is often planted in cities or near busy roads. The tree is relatively drought tolerant and can survive in areas with relatively low rainfall. Usually, the average height reaches 20-40 meters, the diameter of the trunk is around 1-1.5 meters. The tree has a broad and rounded canopy with large, glossy, dark-green, palmate leaves that grow to about 20-30 centimeters in length.¹

Chestnut (*Castanea*) is a group of woody plants belonging to the family of birches, a nut-bearing and scenic tree. It is distributed in the

regions of North America, East Asia, Mediterranean coasts, Morocco, Tunisia, and the Caucasus. 14 species are known. Basically, 4 types are planted. Chestnut lives up to 500-1000 (in some regions 3000) years. Chestnut (*C.sativa*), a perennial plant that lives for many years, grows in the lower and middle regions of the Black Sea and Transcaucasia Mountains. It is 35 m long, and its body diameter reaches 2 m. Branches are wide, leaves are simple, large, long. 12-25 cm, short-banded, 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, pollinated from the outside. The fruit is a nut (chestnut), dark brown. Each has 1 seed. After the tree is planted, it bears fruit in 5-10 years. Light-loving, moisture-loving, heat-demanding. Seed Biology of False Chestnut:

False chestnut produces seeds enclosed in a longitudinal fruit capsule. Each capsule contains 1-3 seeds, which are smooth, shiny, and light brown in color. The seeds have a

¹ <https://uz.wikipedia.org/wiki/Kashtan>

hard, woody outer coat that can remain viable for several years. When the capsule splits open, they fall by gravity and fall to the ground. Because the seeds have a hard outer coat that prevents water from entering the seed, they require stratification (cold treatment) before germination. Stratification involves placing the seeds in a cool, moist place for several months, simulating the winter conditions the seeds would experience in nature. After stratification, the seeds can germinate when the soil temperature is warm enough for growth.

Aesculus hippocastanum is a large tree, reaching a height of about 39 meters (128 ft). In old trees, the outer branches are often pendulous. The leaves are opposite and palmately compound, 5–7 13–30 cm (5–12 in) long. After the leaves have fallen, the leaves on the branches have a horseshoe shape. The flowers are usually white, with yellow-pink spots on the lower part of the leaves. They produce erect inflorescences in spring, 10–30 cm (4–12 in) long, with 20–50 flowers in each inflorescence. Its pollen is not poisonous to bees. Usually only 1-5 fruits develop in each inflorescence. The pod is a green, spiny pod containing one (rarely two or three) nut-like seeds. The common name horse chestnut is given because its leaves and fruits resemble sweet chestnuts (*Castanea sativa*, a tree in another family, Fagaceae). There is speculation that the fruit or seeds can ease breathing or help with coughs. Sometimes called "deer's eye" because of the resemblance of its seed to a deer's eye. *Aesculus hippocastanum* grows in a small area in the mixed forests of the Pindus Mountains of southeastern Europe and the Balkans. However, it can be found in many parks and cities in many parts of Europe, Sweden, the United States, and northern Canada. High doses of horse chestnut extract for post-operative edema have been associated with a risk of acute kidney injury in patients undergoing heart surgery. This phenomenon was dose-dependent, as mild impairment of renal function was observed after 360 µg/kg, and acute kidney injury was noted at 510 µg/kg.

Raw horse chestnut seeds, leaves, bark and flowers are poisonous due to the presence of aesculin and should not be eaten. Horse chestnut seed is classified as a hazardous herb by the FDA. Glycoside and saponin components of the seed are poisonous.²

In summary, false chestnut is a hardy and flexible tree that adapts well to a variety of growing conditions. The tree produces necked fruit capsules containing viable seeds, which require stratification before development can occur. An understanding of the anecology and seed biology of the false breast can assist those wishing to propagate or breed the species to ensure its successful growth and spread.

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6. <https://uz.wikipedia.org/wiki/Kashtan>

²

https://uz.wikipedia.org/wiki/Aesculus_hippocastanum#Foydalanish