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## Yellow Teak (*Haldina cordifolia*): A Multipurpose Jewel of Moist Deciduous Forests

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*Haldina cordifolia* (Roxb.) Ridsdale, commonly known as Yellow Teak or Haldu, is a towering deciduous species native to South and Central India, Sri Lanka, and Southeast Asia, typically populating moist deciduous forests and riparian zones. As the sole representative of the genus *Haldina* within Rubiaceae, this tree is characterized by its large, heart-shaped leaves, yellow globose flower heads, and yellow-tinted wood—hence its common name. Despite its ecological importance in providing habitat and resources for pollinators and wildlife, and its aesthetic suitability for avenues and agroforestry systems, natural regeneration is limited due to seedling vulnerability and low establishment rates. This species possesses exceptional timber qualities—mellow yellow heartwood, acid resistance, moderate durability, and fine texture—making it valuable for panelling, laboratory furniture, flooring, and specialty products such as musical instruments and lab countertops. Simultaneously, its bark, leaves, fruits, and roots have long-standing applications in traditional medicine (Ayurveda and folk), treating ailments including fever, dysentery, skin diseases, wounds, liver disorders, and worm infections; the tree boasts bioactive compounds such as tannins, alkaloids, flavonoids, and saponins. This review synthesizes current knowledge on the botany, distribution, ecology, propagation challenges, timber traits, medicinal uses, phytochemical constituents, and ethnobotanical significance of *H. cordifolia*. We also highlight conservation concerns stemming from unsustainable exploitation and limited natural recruitment. Finally, we recommend domestication strategies—including improved seed handling, nursery protocols, and agroforestry integration—to harness the full potential of this multipurpose species for ecological, economic, and medicinal gain.

**Keywords:** *Haldina cordifolia*, Yellow Teak, Rubiaceae, timber quality, ethnomedicine, conservation, propagation.

### Introduction

Trees and plants are the best gifts of nature to humans. Our earth is blessed with many beautiful and useful trees and plants, which not only provide us with life-giving oxygen, but are also used for other purposes. Haldu is also one of such beneficial trees, Haldu (*Haldina cordifolia* (Roxb.) Ridsdale is a deciduous, tall tree with a large crown: the only species of the Rubiaceae family and the *Haldina* genus. Haldu plant is also known as yellow teak. (Khanna et al., 2021). The tree has long, straight, clean stems and is often buttressed and corrugated at the base. The buttresses are sometimes irregular and bizarrely shaped. This tree attracts a lot of bees and insects, and birds. The brown or light-black bark is yellow when freshly cut, but turns light red-brown when exposed to air. Hence, its name is turmeric wood or yellow teak. Haldu trees are also called May trees. The haldu tree is grown in North India. It is known as Kadamba in most of the states. Its fruits and seeds are rich in medicinal properties. Medicines made from the bark and leaves of this tree provide many therapeutic benefits.

Haldu has an amazing resemblance with Kadam (*Mitragyna parvifolia*/Kaim) as the flowers and leaves look almost the same. But the leaves of Haldu are almost circular, heart-shaped at the base, and have pointed tips. Also, if observed, there is a difference in the stigma of the flowers, too!

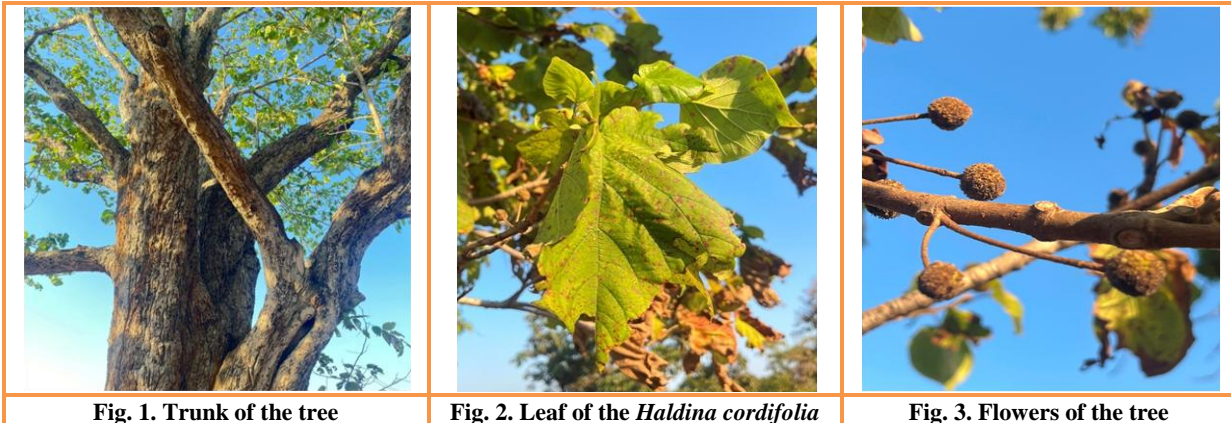


Fig. 1. Trunk of the tree

Fig. 2. Leaf of the *Haldina cordifolia*

Fig. 3. Flowers of the tree

Natural regeneration of this species is difficult as the small seeds as well as young plants are easily swept away in the forests. The proportion of plants that survive and establish themselves in the forests is relatively very small. The available trees are cut down due to the demand for its wood, which is reported to be acid resistant, making it suitable for use as laboratory bench tops, etc, (Kaushal et al., 2010).

**Distribution:** This tree is mainly found in South India, especially in the Eastern Ghats, Andhra Pradesh, and Karnataka. Apart from this, it can also be found in various districts of Madhya Pradesh like Seoni, Balaghat, Chhindwara, Damoh, and Katni. The tree is easily recognizable by its gray bark and the presence of small thorns among the leaves. It usually reaches a height of about 25-30 meters with a circumference of 5-6 meters. Its flowers are pale yellow, and it forms spherical capsules as fruits, each of which contains several seeds (Jeena et al., 2012). In addition, the tree has a tall, straight and articulated stem with a diameter of about 150 centimeters, and long stripes at its base.

**Leaves:** The new leaves have a showy appearance; the leaves are broadly oval and oppositely arranged, with a heart-shaped base and a pointed tip.

**Flowers:** The flowers are bisexual, with yellow, round heads. The flowers may not look good if they are solitary, but when they bloom in inflorescences with a circumference of 20-30 millimeters, they look extremely attractive. They are usually yellow in color, often with a shade of pink. Turmeric usually blooms during the winter (dry season) months. Creamy yellow flowers appear. The flowers are small, yellow, with a round stalked head and fragrant, with a prominent stigma.

**Spore Germination:** Turmeric plants are propagated by seeds. The seed is very small, and hence it should be sown only by mixing it with soil. It is best to sow the seeds in a seed-box which is kept in light shade and protected from heavy rain. It should be watered carefully with a very fine spray. Germination usually takes place in about 10 - 20 days (Sultana et al., 2015). Young seedlings grow very slowly in their first year and are susceptible to being washed away or knocked down by rain at this time. Plants develop a thin but long root in their first year, which becomes quite thick and developed in the second year. Growth is rapid in the second year and thereafter.

Young trees prefer light to moderate shade, but as they grow older, they require more light. It is successful in most soils, but grows best in deep, fairly fertile conditions, in well-drained soil. For example, on the lower slopes of hills among rocks. Usually grows along rivers or in transitional areas between swampy wetlands and dry loamy areas, which are flooded for short periods. The tree has a massive tap-root system in proportion to its size, making it very resistant to drought. The tree can tolerate temperatures between 5°-47°C.

**Medicinal importance:** According to experts, liver problems can be cured by consuming turmeric. The tree, fruit, flower, and bark of turmeric are rich in many medicinal properties,

which have been mentioned in texts like Sushruta. According to Ayurveda, its fruit controls all three doshas (vata, kapha, pitta) of the body. The nature of its fruit is bitter, and the properties present in it are a panacea for many serious problems of the body (Rao and Jain, 2018). Yellow teak is also harvested for local medicinal use. It calms the contaminated bile and is considered useful in inflammation, urinary retention, wounds and ulcers, skin diseases, biliary colic, infections, dysentery, fever, and burns (Adhikari et al., 2019).

- The bark has disease-fighting and antipyretic properties.
- The infusion of roots is beneficial in diarrhoea and dysentery.
- Wounds heal quickly with cream made from leaves and bark.
- Turmeric is astringent, bitter, hot, mild, dry, phlegm suppressant, depigmenting, ulcerative, ulcerative, tonic, radiant and soothes skin defects.
- The root of turmeric is anti-purulent, anti-inflammatory and anti-bile.
- Its root is anti-flow and erect.
- It is beneficial in dyspepsia, vomiting, thirst, duodenal dysuria, fever and worm diseases.
- Consuming crushed Haridru/Haldu fruits in powder or decoction is beneficial in diabetes.
- The bark of this tree acts as an antiseptic.



Fig. 4. *Haldina cordifolia* tree

**Uses:** The leaves of the turmeric tree are used for fodder, and the twigs are used for burning. This tree gives many times more pure air than normal trees. Birds make their home in it. Langurs, monkeys, vultures, and eagles also sit in this tree. It is a large deciduous tree that is naturally found growing in forests on the banks of rivers and lakes. This shady tree is suitable for planting on the sides of roads as an avenue tree. Some of its special uses are: The wood is strong and useful, which is used as timber. Due to being acid-resistant, it is especially preferred for making laboratory equipment. But this tree is also potentially an excellent species for agroforestry! This tree produces fuelwood and fodder for livestock. It can be cut down in limited quantities. It provides a good amount of green manure. It gives a yellow dye, which was used to color wool and linen. This botanical beauty is a stunning addition to any outdoor garden space. With its heart-shaped leaves and vibrant yellow flowers, it adds a touch of exotic elegance to its surroundings, not just a feast for the eyes. Its fruit contains seeds that are commonly eaten. It is a beautiful and useful tree found in various regions.

**Commercial Uses:** Haldu is extensively used for structural works. It is one of the best Indian timbers suitable for flooring, panelling, and railway carriages. It is also suitable for pulp and paper, window frames, furniture, piano keys, rulers, etc. The wood is also used for pencil manufacturing (Pandey et al., 1981). Apart from this, Haldu wood is also used for canoes, river boat planks, toys, drums etc.

**Cultural Significance:** Haldu plant holds cultural significance, revered for its medicinal properties in traditional Ayurvedic practices. Its hardy nature makes it suitable for outdoor cultivation, thriving in well-drained soil and partial sunlight. Embrace the charm of nature with Haldu plant, a symbol of beauty and vitality. In some parts of India, this tree has religious significance in Hindu wedding rituals. This tree is also mentioned in Ayurveda.

**Conservation:** Harvested from the forests for useful wood, which is usually traded only locally, as it is available only in small quantities. It is also harvested for local medicinal use. Its leaves, seeds, bark and roots are used extensively in traditional Indian medicine. The tree needs conservation due to its medicinal uses.

## Conclusion

In conclusion, *Haldina cordifolia* (Yellow Teak, Haldu) emerges as a botanical treasure, uniting ecological, economic, and medicinal strengths. Its robust, straight trunk and yellow-tinged wood make it an asset for timber industries and agroforestry programs, thanks to inherent acid resistance and moderate durability. Ecologically, the species supports forest biodiversity by offering nectar and habitat for bees, birds, and insects in the moist deciduous zones of Central and South India.

Ethnobotanical evidence underscores its therapeutic breadth—from traditional Ayurvedic remedies targeting liver disorders, fever, wounds, and urinary issues to bioherbicide potential in weed control. Phytochemical investigations reveal a rich palette of tannins, alkaloids, saponins, and flavonoids, affirming its role as a medicinal reservoir. However, its regenerative capacity remains challenged; small seed size leads to high losses in natural silvicultural settings, necessitating improved seed harvesting and propagation protocols.

Successful ex-situ propagation studies—like optimal seed maturity timing and in vitro or grafting methods—offer scalable solutions to conservation and plantation goals. Institutional efforts (e.g., ICFRE-TFRI clonal trials and polybag planting in Madhya Pradesh) mark promising progress toward systematic domestication.

To fully harness its multifaceted benefits, a coordinated strategy involving:

1. **Seed biology research:** Define accurate maturity metrics and seed handling to boost germination success.
2. **Advanced propagation:** Scale up in vitro, vegetative, and clonal methods to enhance planting stock quality.
3. **Agroforestry integration:** Use *H. cordifolia* in mixed cultivation systems to elevate rural incomes and environmental services.
4. **Sustainable wood use:** Promote efficient utilization in niche timber markets (e.g., lab benches, canoes, furniture), ensuring better returns and reduced wastage.
5. **Medicinal and biocontrol research:** Deepen phytochemical screening and pharmacological trials to valorize its bioactive compounds.

In summary, *Haldina cordifolia* is much more than a forest tree—it is a strategic resource with the power to enrich silviculture, healthcare, and livelihoods. Realizing its potential hinges on integrating scientific propagation methods with sustainable management. Future research and policy frameworks should aim at bridging ecological insight, propagation efficiency, and market innovation to secure a thriving future for Yellow Teak.

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