



## ***Chloroxylon swietenia* DC (East Indian satin wood tree) uses- A review**

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*Chloroxylon swietenia* DC is a medium-sized deciduous tree, growing to 15–20 m tall, with thick, fissured, slightly corky bark and pinnate leaves. The flowers are small, creamy-white, produced in panicles; the fruit is an oblong three-segmented capsule 2.5-4.5 cm long, containing 1-4 seeds in each segment. It is native to India (Andhra Pradesh, Kerala, Tamil Nadu); Madagascar; Sri Lanka. In India most plant parts are medicinally used. The present review discussed about the uses of different parts of the tree viz., bark, stem, timber and leaves. Plant parts are used medicinally bark is used to treat cold, cough; leaf and stem bark paste is to cure wounds by external application; Leaves are used in ripening of fruits, as galactogogue in goats, as mosquito repellents, as larvicidal and for fishing; stem is used as timber and construction purpose, mature stem is used for making reapers for tiled houses and planks; agricultural implements, furniture and Walking sticks. It is a slow-growing species which has become very scarce in most areas because of timber exploitation. It is one among IUCN (International Union for Conservation of Nature) red data list plants. It is very useful plant with its medicinal and non - medicinal uses. It is a slow-growing species which has become very scarce in most areas because of timber exploitation. So there is an urgent need of conservation of this plant by in situ and ex situ conservation methods.

Key words: Medicinal , non medicinal uses, IUCN red list, slow growing species, conservation

### **Introduction**

Biodiversity is the biological diversity which includes the variety of the whole species present on earth. It includes different animals, plants, micro-organisms and their genes, water ecosystems, terrestrial, and marine ecosystems in which they all are present. Biodiversity is necessary for our existence as well as valuable in its own right. This is because it provides the fundamental building blocks for the many goods and services which provides a healthy environment to lead our life.

The present review on *Chloroxylon swietenia* DC conveys its uses and emergency alert to conserve this plant as it is in IUCN red list.

*Chloroxylon swietenia* DC. a member of Rutaceae family is a medium sized and deciduous tree with a height of about 9 -15 m and 1.0 -1.2 m girth with a spreading crown and clear bole up to 3 m. The tree is native to India and Sri Lanka and commonly known as "Ceylon Satinwood" or "East Indian Satinwood". In India, it is found wild in dry deciduous forests up to an altitude of 1100 m[1]. It grows on black cotton soils, metamorphic

rocks and bare rocky ground on poor soils, if they are well drained and contain a large portion of sand or gravel [2]. The leaves are 15 - 23 cm long and abruptly pinnate. The leaflets (10 - 20 pairs) are sub-opposite or alternate, oblong, obtuse, glabrous and glaucous. Flowers are white or cream in colour and present in terminal or axillary panicles. The tree is usually leafless from February to May, flowers appear during March-April, and fruits generally ripen during May-August

and produce seeds profusely almost every year. The wood is often golden in colour with a reflective sheen and used in manufacturing of wooden furniture [1-4]. Owing to its heavy demand, the tree now has become extinct. The tree has been cited under Red List Category under IUCN Red List of Threatened Species, as per the assessment of Asian Regional Workshop International Journal of Emerging Trends in Pharmaceutical [5].

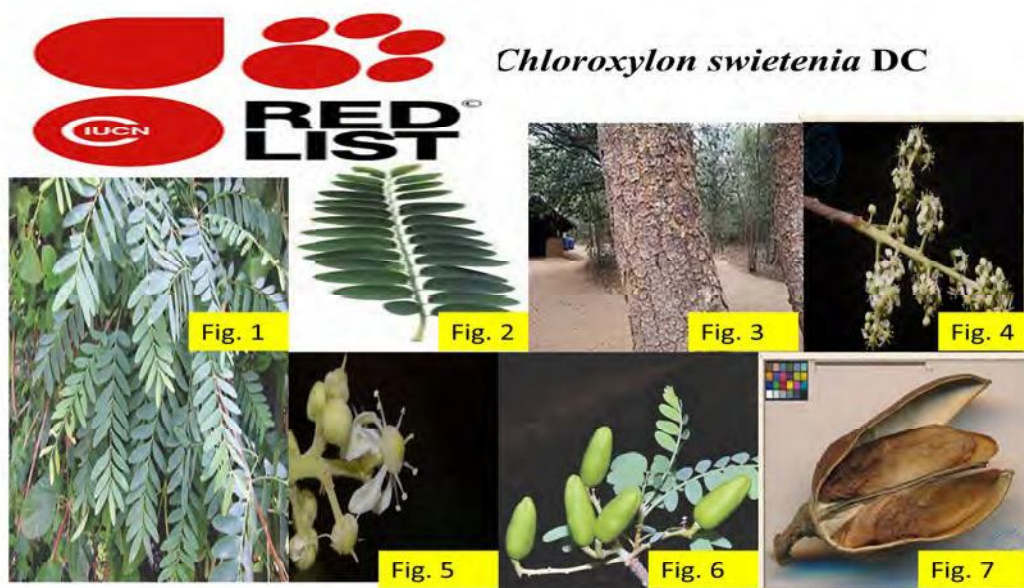


Fig.1 Tree Fig. 2. Leaf, Fig. 3. Trunk with bark Fig. 4. Panicle inflorescence Fig. 5. Flower Fig.6 & 7 fresh and dry capsule.

A vulnerable species is one which has been categorized by the International Union for Conservation of Nature as likely to become endangered unless the circumstances threatening its survival and reproduction improve. Vulnerability is mainly caused by habitat loss or destruction of the species home.

Dried bark smoke is inhaled against cough and cold <sup>6</sup>. Malayali tribes have fine knowledge to use natural resources particularly plants for their day-to-day life. Leaves of *Chloroxylon swietenia* DC., used for ripening of fruits and wood for agricultural tools <sup>7</sup>. Stem bark paste is used as an external application on wounds. In yoke gall, paste of stem bark ash mixed with *kanuga* (*Pongamia pinnata*) oil is



applied over the affected area <sup>8</sup>. Stem bark extract is administered orally once a day for a fortnight during panting in cattle. During insect bite, stem bark extract is given. Leaf paste is used as an external application in cuts and wounds<sup>9</sup>; to keep mosquito away from their body, leaves are rubbed on the exposed body parts and also put its twigs on the head and back, crushed to powder and spread in ponds for fishing<sup>10</sup>, leaves fed to goat as galactagogue <sup>11</sup>; leaves are used for fumigation against flies and insects <sup>12</sup>. Timber and construction purpose. Mature stem is used for making reapers for tiled houses and planks<sup>13</sup>. Leaf

extracts and isolated compounds have potent larvicidal properties on *Aedes aegypti* and *Anopheles stephensi* and compared favorably with the commercially available insecticide Malathion as a positive control which can be a promising larvicidal agent as an alternative to the synthetic compounds<sup>14</sup>. Larvicidal and ovicidal properties of leaves on lepidopteran pest *Spodoptera litura* (*S. litura*)<sup>15</sup>. Wood is used in making agricultural implements, furniture, house construction, walking sticks <sup>16</sup>. House construction, Agricultural Implements, fuel wood, bullock cart <sup>17</sup>.

Table. 1 Uses of different parts of *Chloroxylon swietenia* DC

S. NO	Reference cited	Part of the plant Used	Uses
1.	6	Dried bark smoke	cough and cold
2.	7	Leaves and wood	ripening of fruits and wood for agricultural tools
3.	8	Stem bark	In yoke gall, paste of stem bark ash mixed with <i>kanuga</i> ( <i>Pongamia pinnata</i> ) oil is applied over the affected area
4.	9	stem bark	insect bite, stem bark extract is given. Leaf paste is used as an external application in cuts and wounds
5.	10 & 12	Leaves	Fishing, mosquito, flies and insect repellants
6.	11	leaves	goat as galactagogue
7.	13	Mature stem	reapers for tiled houses and planks <sup>13</sup>
8.	14 & 15	Leaf	larvicidal and ovicidal properties
9.	16 & 17	Wood	agricultural implements, furniture, house construction, walking sticks, fuel wood, bullock cart

With the above review on uses of *Chloroxylon swietenia*, it is very useful plant for welfare human beings. Documentation of fruit ripening properties <sup>7</sup> is worth mentioning and further studies in this regard will benefit the human populace and protect us from

various **health hazards** like, headache, **dizziness**, mood disturbances, **sleepiness**, mental **confusion**, **memory loss**, **cerebral edema** and seizures caused due to chemical fruit ripening agents like calcium carbide. Further Ovicidal, larvicidal and insecticidal are



very useful to control mosquitoes and insects.

It is a slow-growing species which has become very scarce in most areas because of timber exploitation and became vulnerable. There is an urgent need to conserve the plant on top priority basis by in situ, ex situ conservation and standardizing techniques for regeneration of the plant through micro propagation.

It is generally preferred to conserve threatened species in situ, because evolutionary processes are more likely to remain dynamic in natural habitats. However, considering the rate of habitat loss worldwide, ex situ cultivation is becoming increasingly important [18]. Furthermore, as many of the taxa are located outside natural parks or reserves, in situ measures are not enough to assure their conservation. Translocation, introduction, reintroduction, and assisted migrations are species conservation strategies that are attracting increasing attention, especially in the face of climate change [19].

The need for action for global biodiversity conservation is now well understood, and government agencies, nongovernmental organizations, and botanic gardens have all been working in various ways to promote environmental sustainability and reduce species and habitat loss [20]

*Ex situ* conservation is increasingly important as plant diversity is threatened by habitat loss, unsustainable use and climate change (21). Whereas for most species, seed banking is the most effective and efficient method for conserving plant diversity long-term, it is not applicable to all

species. Some seeds are intolerant of or short-lived in the dry, freezing conditions (15% RH, -20°C) used in current seed banking (22)

The plant is susceptible to fire damage. In India the tree is an alternative food-plant for the caterpillars of *Papilio demoleus*, a pest of *Citrus* spp. [23]

Conclusion:

With the above review inferred that, it is very useful plant for welfare human beings. Documentation of fruit ripening properties<sup>7</sup> is worth mentioning and further studies in this regard will benefit the human populace and protect us from various **health hazards** like, headache, **dizziness**, mood disturbances, **sleepiness**, mental **confusion**, **memory loss**, **cerebral edema** and seizures caused due to chemical fruit ripening agents like calcium carbide. Utilization of this plant for various medicinal and non-medicinal purposes without proper conservation measures causes its status to IUCN endangered plants list from vulnerable plant list.

Immediate outcome of the present work is, there an urgent need to conserve the plant on top priority basis by in situ, ex situ conservation and standardizing techniques for regeneration of the plant through micro propagation.

References

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