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## **CHLOROXYLON SWIETENIA AN IUCN RED LISTED PLANT – MEDICINAL USES**

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### **ABSTRACT**

*Chloroxylon swietenia* belonging to family Rutaceae is a medicinal and aromatic tree of dry deciduous forests. It is used in decorative veneer, furniture and cabinetwork, turnery, interior joinery. The whole part of this tree has long been used in the traditional system of medicine such as the bark is used as an astringent, leaves are applied to worm infested wound of animals, for the treatment of inflammation related disorder like pain and rheumatism. Previous studies have shown that the extract of plant posses antifeedant, antifertility, larvicidal, mosquito repellent, anti-inflammatory, antimicrobial, hepatoprotective, antioxidant and antidiabetic activity. Researchers have find out some novel compounds from leaves of this tree. Until now many other activities lack scientific support. The tree now has cited under IUCN Red List Category as vulnerable Species. This is due to the timber exploitation. Thus, there is an urgent need for a sustainable conservation of this important medicinal plant before it totally disappears from the earth. This article may support the researcher who works on conservation and production of biomolecules from medicinal plant.

**KEYWORDS:** *Chloroxylon swietenia*, Conservation, IUCN, Vulnerable species, Medicinal uses.

## INTRODUCTION

East Indian satinwood belongs to the family Rutaceae occurs in dry mixed evergreen forest. The other names of *Chloroxylon swietenia* are Satinwood, Billu, Mashwal, Mududad, Purasu etc. It is native to India (Andhra Pradesh, Kerala and Tamil Nadu), Madagascar and Sri Lanka.

## Morphology

It 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 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. <sup>[1]</sup>

## Traditional Usage

*Chloroxylon swietenia* has been used in the folkloric medicine. Malasar tribes from Coimbatore (Tamil Nadu, South India) apply the leaf paste on wounds, cuts, burns and skin diseases for quick relief <sup>[2]</sup>. Chenchus of Nallamalais (Andhra Pradesh, South India) apply the leaf paste to treat worm infested wound of animals, fungal infection of skin and rheumatism <sup>[3]</sup>. Various parts are also used in the treatment of snakebites, common cold and cough, ophthalmic infection and cataract, astringent, itches, headache, impotence etc. Most of these conventional uses are short of scientific confirmation. Researchers have isolated many novel bioactive compounds from this tree for treating various diseases.

**Table: Scientifically proven pharmacological activity**

S.No	Pharmacological activity	Reference
1.	Antioxidant activity	4
2.	Antimicrobial activity	5
3.	Antifungal activity	6
4.	Mosquitocidal activity	7
5.	Insecticidal, antifeedant and oviposition deterrent activity.	8
6.	Anthelmintic activity	9
7.	Analgesic activity	10
8.	Anti-inflammatory activity	11
9.	Hepatoprotective activity	12
10.	Invitro fungitoxic and cytotoxic efficacy	13
11.	Mushroom tyrosinase inhibition activity	14
12.	Antidiabetic activity	15

## IUCN

Species are classified by the IUCN Red List into nine groups, set through criteria such as rate of decline, population size, area of geographic distribution and degree of population and distribution fragmentation.

1. Extinct (EX) – No known individuals remaining.
2. Extinct in the wild (EW) – Known only to survive in captivity, or as a naturalized population outside its historic range.
3. Critically endangered (CR) – Extremely high risk of extinction in the wild.
4. Endangered (EN) – High risk of extinction in the wild.
5. Vulnerable (VU) – High risk of endangerment in the wild.
6. Near threatened (NT) – Likely to become endangered in the near future.
7. Least concern (LC) – Lowest risk. Does not qualify for a more at risk category. Widespread and abundant taxa are included in this category.
8. Data deficient (DD) – Not enough data to make an assessment of its risk of extinction.
9. Not evaluated (NE) – Has not yet been evaluated against the criteria.

### Present position of *Chloroxylon swietenia*

IUCN updated version of 2014 have included *Chloroxylon swietenia* as

Vulnerable species. It is a slow-growing species which has become very scarce in most areas because of timber exploitation.

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. Vulnerable species are monitored and are becoming threatened.

## CONCLUSION

*Chloroxylon swietenia* have been used in the folkloric medicine, its medicinal usage was high in the history. Due to over exploitation of timber, IUCN have listed it as vulnerable. Some of its traditional usage was scientifically proven but still some usages are yet to be proven. Conservation of this medicinally valuable tree is much important. This article would have provided an idea on the medicinal value of *Chloroxylon swietenia* and the importance of conserving this tree before it become extinct from the world.

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## REFERENCES

1. Nilip Kanti Deb and Gouri Kumar Dash. 2013. A Review on

- Ethnopharmacology, Phytochemistry and Bioactivity of *Chloroxylon swietenia* DC. IJEPTS. 1(1): 11-20.
2. Venkataswam, R., Mohamad M.H., Doss, A., Ravi, T.K., and Sukumar, M. 2010. Ethnobotanical Study of Medicinal plants used by Malasar tribals in Coimbatore District of Tamil Nadu (South India). *Asian J Exp Biol Sci.* 1(2), 387.
  3. Reddy, C.S., Reddy, K.N., Rao, K.T. and Pattanaik, C., 2007. Ethnobotanical Studies on Medicinal Plants Used by the Chenchus of Nallamalais in Kurnool District, Andhra Pradesh, India. *Research Journal of Medicinal Plant.* 1: 128-133.
  4. Vijaya Bhasker Reddy A. 2008. Use of Various Bio-Fencing Plants in the Control of Human Diseases by the Lambada Tribe Inhabiting Nalgonda District, Andhra Pradesh, India. *Ethnobotanical Leaflets.* 12: 520-23.
  5. Kiran, S.R., Devi, P.S., and Reddy, J.K. 2008. Evaluation of in vitro antimicrobial activity of leaf and stem essential oils of *Chloroxylon swietenia* DC. *World J Microbiol Biotechno.* 24, 1909–1914.
  6. Telang. T, Awasthy.S. K and Oswal. P. 2013. Antifungal activity of oxidized essential oil of *Chloroxylon swietenia* Roxb. Corom. *Journal of Biomedical and Pharmaceutical Research* 2 (2): 72-74.
  7. Kiran, S.R., and Devi, S.P. 2007. Evaluation of mosquitocidal activity of essential oil and sesquiterpenes from leaves of *Chloroxylon swietenia* DC. *Parasitol Res.* 101(2).
  8. Kiran, S.R., Reddy, A.S., Devi, S.P., and Reddy, J.K. 2006. Insecticidal, antifeedant and oviposition deterrent effects of the essential oil and individual compounds from leaves of *Chloroxylon swietenia* DC. *Pest Manag Sci.* 62(11):1116-21.
  9. Ranjit Kumar Harwansh, Surendra Kumar Pareta, Kartik Chandra Patra, Md. Akhlaquer Rahman. 2010. Preliminary phytochemical screening and anthelmintic activity of *Chloroxylon swietenia* root extract. *International Journal of Phytomedicine* 2:255-259.
  10. Senthilraja, A., and Ramkumar, R. 2003. Analgesic activity of *Chloroxylon swietenia*. *Agronomy.* 40: 34.
  11. Kumar, K., Ganesh, M., Baskar, S., Srinivasan, K., Kanagasabai, R., Sambathkumar, R., Kumar, S.S., and Sivakumar, T. 2006. Evaluation of Antiinflammatory activity and toxicity studies of *Chloroxylon sweitenia* in Rats. *Anc Sci Life.* 25(3- 4): 33-43.

12. Palani, S., Raja, S., and Kumar, S.B. 2010. Hepatoprotective and antioxidant potential of *Chloroxylon swietenia* (Rutaceae) on acetaminophen induced toxicity in male albino rats. *International J. Pharm Tech Res.* 2:162.
13. Senthilkumar. A & Venkatesalu .V. 2013. In vitro fungitoxic and cytotoxic efficacy of *Chloroxylon swietenia* DC. leaf essential oil. *Journal of Essential Oil Research.* 1-6.
14. Gottumukkala Venkateswara rao, Kolisetty Sambasiva rao, Tiruganasambandham annamalai, Narayanasamy radhakrishnan, Triptikumar mukhopadhyay. 2009. Chemical constituents and mushroom tyrosinase inhibition activity of *Chloroxylon swietenia* leaves. *Turk J Chem* 33, 521 – 526.
15. Aravind Patchimatla, Sainath Reddy Kankanala, Sharavanabhava Sheshagiri Bandaru, Umasankar Kulindaivelu, Venkateshwar Rao Jupally1, Venkateshwarlu Eggadi. 2014. Investigation of lipid profile and ocular oxidative stress of *Chloroxylon swietenia* on Streptozotocin- nicotinamide- induced diabetic rats.