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# A REVIEW ON *KINGIODENDRON PINNATUM* (DC.) HARMS: AN ENDANGERED MEDICINAL PLANT

***[1]Meha Mepani and [2]Kevin D'cruz**

St. Xavier's College, Mumbai.

***Corresponding Author: Meha Mepani**
St. Xavier's College, Mumbai.

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## ABSTRACT

*Kingiodendron pinnatum* is used for its various medicinal properties by Tribes of western ghats of India. Tribal people are aware about the properties of medicinal plants around them. *Kingiodendron pinnatum* is listed as an endangered plant species under IUCN red listed plants. The plant is endemic to south western ghats of India. Each part of the plant is used for various purposes. The oleo-gum resin of the plant is used in gonorrhoea, catarrhal conditions of genito urinary and respiratory tracts. The resinous substance heals the wound caused by the injury and also covers the wound surface. The bark of this plant is used as an alternative for *Saraca asoca* in Ayurvedic medicine. The leaves exhibit potent inhibitory activity which improves glucose tolerance in diabetic patients. The leaf extract of *Kingiodendron pinnatum* contains some biological active compounds like saponins, tannins, terpenoids, steroids, Phenols, Flavonoids etc. Phenols and Flavonoids are potent antioxidants and have strong anticancer activity. The leaf extract of *Kingiodendron pinnatum* possesses anti-tubular and anti-microbial activity. Other phytochemical constituents also play an important role in medicinal properties. It is used to cure sores of elephant. Very few medicinal plants have Anti-diabetic activity. Because of overexploitation, the plant species is endangered and knowing about its properties and medicinal uses, it is important to conserve this plant species.

**KEYWORDS:** *Kingiodendron pinnatum*, endangered, Ayurveda medicine, Anti- diabetic, Conservation.

## INTRODUCTION

*Kingeodendron pinnatum* (DC.) Is a large tree that is slowly being propagated in the tropical forest of the western ghats of India. It is an endangered tree plant of the Fabaceae family.[2] Fabaceae, the third-largest family of about 730 generations of angiosperms and more than 19400 species worldwide includes plants commonly called legumes. *Kingeodendron pinnatum* is known as Malabar Mahogany.[3] The scientific and medical development of the *Kingeodendron pinnatum* has not yet been established although it is traditionally used by regional tribes. Ethnobotanical research reveals the use of many traditional remedies in treating various ailments that generally have no side effects, are economical and easily accessible to humans, and provide vital energy for the development of novel biomolecules. In this current study research has been conducted to find the therapeutic properties of *Kingeodendron pinnatum* and its applications. The extracts of the methanolic leaves of *Kingeodendron pinnatum* contain various bioactive chemicals that have antioxidant, anti-obesity and antidiabetic properties.[5] The plant can be considered as a promising natural antioxidant source for medical and commercial use. Several organic compounds found in plants include Phenolic compounds (Flavonoids, Phenolic acid), sugar vitamins, saponins, ethereal fats, polyunsaturated fatty acids, phospholipids, enzymes, amino acids etc.[4]

### Habit and Distribution

Seventeen populations of *Kingeodendron pinnatum* were identified in 13 forest locations of Kerala area of western ghats. The individuals of *Kingeodendron pinnatum* are distributed gregariously in the evergreen forest within an altitude varying from 170m to 700m.

### Botanical Description

*Kingeodendron pinnatum* is an evergreen tree. Leaves are alternate, ovate-lanceolate or oblong, apex acuminate, entire margin, minute stipules. Flowers are bisexual, 2-3 mm, white in axillary and terminal panicle raceme. Calyx tube with five lobes, broadly ovate, imbricate. Petals are absent. It has 10 stamens filiform filaments, versatile anther. It has half inferior ovary, two ovules, minute stigma. The flowering and fruiting season is from February-December.

### Classification

Kingdom – Plantae
Division – Angiosperms
Order – Fabales
Family – Fabaceae

Genus – *Kingeodendron*
Species – *pinnatum*

**Vernacular names**
Kannada- Chou Paini, Enne Mara, Yenna Mara
Malayalam – Churali, Chukannapayini, Kiyavu, Koda Pala, Kulavu

**Plant Parts Used**
Leaves, stembark, flowers and fruits

**Chemical Constituents**
The plant contains active components like Phenols, Flavonoids, Glycosides, Diterpenes. It also contains Tannins, Terpenes, Anthraquinones, Phlobatanins that are responsible for Anti tubular Activity.

**Pharmacological Studies**
**Effective alternative for *Saraca asoca* in an Ayurvedic preparation**
The study was carried out to compare Anti-inflammatory activity of methanolic extract of Saraca asoca and *Kingeodendron pinnatum* .The results proved that *Kingeodendron pinnatum* is as effective as Saraca asoca.[4] Arishta prepared with *Kingeodendron pinnatum* showed similar properties as that of Ashokarishta and therefore can be used as an Alternative.[1]

**Anti- tubular Activity**
The antitubercular activity of leaf extract of *Kingeodendron pinnatum* against *M.tuberculosis* H37RV American type culture collection by proportion assay.[6] This assay measures the capability of leaf extract to inhibit the growth of *M.tuberculosis* at concentration of 50µg/ml. It offers the scope for development of antitubercular crude drugs.

**Antimicrobial and Antioxidant Activity**
The Antimicrobial activity was carried out by disc diffusion method.[8] The antimicrobial activity of methanolic leaf extract of *Kingeodendron pinnatum* was found to be highest against Staphylococcus aureus. The methanolic leaf extract of *Kingeodendron pinnatum* was tested for antioxidant activity by DPPH assay and was confirmed by Phosphomolybdate assay.[7] It showed high antioxidant activity.

## CONCLUSION

The Western ghats region is very rich in biological resources. The information available from the tribals is useful in the field of ethnobotany, taxonomy and pharmacology. There is need for multiplication and conservation of this species because the leaf extract possesses bioactive compounds which have antioxidant, anti-obesity and anti-diabetic drugs and offers scope for development of potential crude drugs. Due to over-exploitation of plant species is endangered and knowledge of its properties and medicinal uses, it is important to conserve this species.

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Mr. Kevin D'cruz, Department of Botany, St. Xavier's college (Autonomous), University of Mumbai, Mahapalika Marg, Mumbai- 400001.

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