



## ***Celastrus paniculatus* Wild an Endangered Medicinal Plant in Kota (Hadoti-Region) of Rajasthan**

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### **ABSTRACT**

All plants are useful to mankind, in the time of modern scientific medicines, traditional medicines are still use as primary source of treating diseases in the vast area of the world. These traditional medicines are found through the Medicinal plants. Medicinal plants always plays an important role in our life. *Celastrus paniculatus* wild. (Family Celastraceae) is an important medicinal plant found in some areas of Hadoti region. *Celastrus paniculatus* wild. commonly known as Malkangini, Jyotishmati, Black oil plant, Intellect tree. This plant reported as nervine tonic, rejuvenant, anti-depressant, anti oxidant, free radical scavenger etc. Seed oil also used as pain relief ointment.

**Key words:** Medicinal plant, Malkangini, Nervine tonic, Anti depressant.

### **INTRODUCTION**

Since thousand of years humans have been dependent on natural resources directly or indirectly, for food, shelter, medicines, clothing, transportations, fertilizers. In present scenario when peoples are facing many health hazards due to their lifestyle, they need to find some remedies to over come the problems. Plants synthesize a bewildering variety of phytochemicals but most are derivatives of a few biochemical motifs<sup>1</sup>. The use of plants as medicine predates written human history. Many of the herbs and spices used by humans to season food also yield useful medicinal compounds<sup>2</sup>. Natural products are significant source of synthetic and traditional herbal

medicines and the primary health care system<sup>3,4</sup>.

*Celastrus paniculatus* wild commonly known as Malkangini, Jyotishmati or Savarnalota<sup>5</sup>. It is an important Indian deciduous forest climber growing in sub Himalayan tract, Western ghats, Eastern ghats (up to 1500m. elevation). It is an rare plant of Orrisa, particularly found in forest blocks, but abundantly found in Simlipal biosphere reserve forest, Karlapat sanctuary and Niyamgiri hills<sup>6,7,8</sup>.

It is found in endangered conditions into Chamble vally, MHTR region, ummedganj forest and in Darah forest.

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In Hadoti region it is found hardly 2 or 3 plants in the area of 3-5 kms. of forest. This vine can grow to a very large size. It belongs to class Angiospermae, family Celastraceae, order Celastrales. The stem of this shrub grows up to 6 meters in length and 10 centimeters in diameter. It produces many woody branches that helps to surrounding flora for support. The stem has rough, pale brown or reddish exfoliating bark covered with small elongated white lenticels. The inner bark is light, cork like with yellow sapwood. The leaves are broad, simple, oval, elliptical, leathery, smooth, alternately arranged on short petioles with toothed margins<sup>9</sup>.

They grow on stem as light to dark in color. The flowers are 3.8 mm in diameter, whitish green or yellow in color and grow on top of the main stalk in terminal drooping manner. Capsules of *Celastrus paniculatus* wild are globose, depressed, trilobbed, bright yellow in color containing 3-6 seeds per seed pod/capsule. It is enclosed with orange red aril. Seeds are small, oval, and gradually change into bright to dark red in color. Seeds are used for staining and extracting oil from it. The seed oil is used as pain relief ointment. The whole plant is economical important but bark, seed and leaves has some important values.



Fig. 1: Natural habit of *Celastrus paniculatus* plant.



Fig. 2: one plant of *Celastrus paniculatus* in Borabas area.



Fig. 3: Reddish Brown Stem covered with small elongated white lenticels.



Fig. 4: Dry seeds of *Celastrus paniculatus*.

**Table 1: Properties and Botanical description of Different Plant parts of *Celastrus paniculatus* wild**

Plant Part	Properties / Botanical description
Bark	Pale Brown, Rough, Corky with small scales.
Stem	Woody, Climber
Leaf	Simple, alternate, Broad, ovate, elliptical, glabrous, slightly serrate, obtuse or rounded, acute apex, acuminate.
Flower	Unisexual, small, greenish white flower, terminal, racemose, calyx lobed rounded, ciliated, free, male flower are minute, female flower has sepals, petals, and a disk similar to male flower.
Capsule	Yellow, Globose, wrinkled, trivalved, 3-6 seeded.
Seed	Growing inside the capsule, ellipsoid, yellowish or dark reddish in color, enclosed in yellow/orange aril.

**Region of occurrence in India:** *Celastrus paniculatus* is found as a hardy bush. It is found in Himalayan region, western Ghats, eastern ghats up to an elevation of 1500 – 1800meters. It is a rare plant of Odisha, particularly found in forest block, but abundantly found in Simlipal biosphere reserve forest, Karlapat sanctuary and Niyamgiri hills<sup>10</sup>.

**Region of occurrence in Rajasthan:** The plant *Celastrus paniculatus* is found in Udaipur, Sirohi, Mount abu, Ajmer, Baran,

jaipur, Bundi, Jhalawar, and some areas of Kota district. This hardy bushy plant of *Celastrus paniculatus* is found as in endangered condition in kota district of Rajasthan. This plant is found in Chamble valley, Mukundra Hills Tiger Reserve, Ummedganj area, and in some areas of Darah forest kota.

**Bio Active Components of different parts of *Celastrus paniculatus*:** The plant *Celastrus paniculatus* is rich of Bio active components. These active components are in Table 2.

**Table: 2**

Plant part	Bio active components
1. Leaves	Saponine
2. Seed	Acetic and Benzoic Acid, Crystalline substances, tetracasanol, sterols, Alkaloid Celastrine and Paniculatin. (12,13)
3. Seed oil	Acetic and Benzoic acid, Celastrine, Paniculatin.
4. Root bark	$\beta$ -sitosterol, Celastrol, Zeylasterone, Zeylasteral, Terpenoids.

**Uses of the plant *Celastrus paniculatus*:** The plant *Celastrus paniculatus* is belongs to kingdom Angiospermeae, family celastraceae, order celastrales. From the ancient time *Celastrus* is used in Ayurveda medicines. It was used as Powerful Brain tonic, Appetite stimulant, Pain relief medicin, sexual stimulating medicines and Anti depressant tonic<sup>11</sup>. The whole plant has an important medicinal values.

Stem and root is used in curing Malaria disease<sup>14</sup>. The Leaves of *Celastrus paniculatus* having some anti microbial and anti fungal activities. It is ease to cure cough,

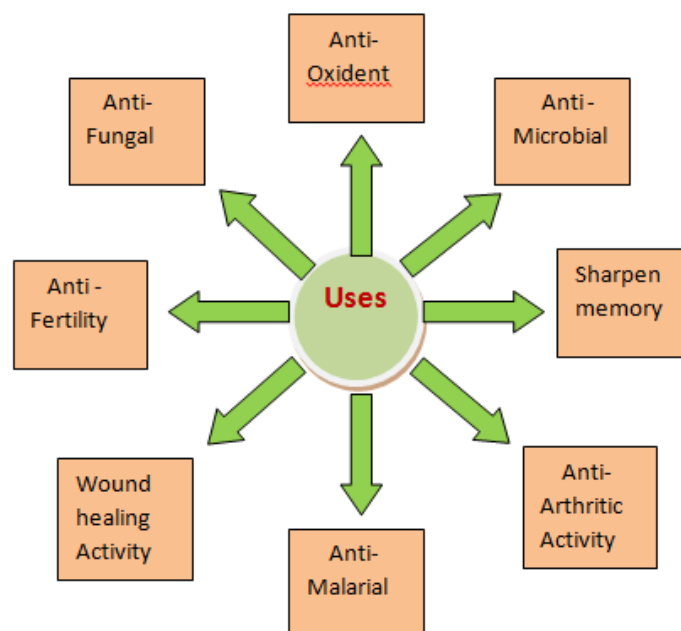
cold and other infectious diseases. Seed and seed oil is used to treat infections. It has anti depressant qualities to over come depression. It has antifungal and nervine properties. It use to Sharpen memories, cure sores and ulcers. The bark of *Celastrus* is used as mosquitoes repellent. Its oil enriches blood and increases the immunity power in body.

In some studies the plant Malkangini and its seed oil shows some sedative properties in some animals like monkeys, cats, rats and mice. It shows anticonvulsant effect and antispermatogenic effects in rats<sup>15,16,17</sup>.

The plant *C.paniculatus* played important role joint pains problems. to cure asthma disease, reducing headaches,

**Table 3: Uses Of Different Parts of *C. paniculatus***

PLANT PART	BIO-ACTIVE COMPONENTS	USES
Leaves	Saponin	Responsible for anti microbial and anti fungal activities, cure cough and infections.
Root and Bark	$\beta$ -sitosterol, Celastrol, Pristimerin, Zeylasterone, Zeylasteral; Terpenes	Used to cure malaria disease. (25,26)
Seed and Seed oil	Acetic, Benzoic acid, tetracasanol, (18,19), Alkaloid, Celastrine, and paniculatin.	Used to treat infections; have sedative and antidepressant actions; possess emetic, diaphoretic, febrifugal and nervine properties; sharpens memory; cure sores, ulcers; mosquitoes repellent; alkaloid fractions have tranquilizing properties. oil enriches blood.



**Fig. 5: Uses of Plant *C. paniculatus***

**Recent Studies:** *C. paniculatus* has long used as ayurvedic medicine in all over the world. The studies by modern sciences confirmed the miraculous effects of this plant. The seeds oil of *C. paniculatus* is used as nervine relaxation ointment. The seeds of this plant using for curing mental disorders or Depression. The recent studies on albino rats, oil extracted from the seeds of this plant was resulted as effects on the content of norepinephrine (NE), dopamine (DA) and serotonin in the Brain<sup>20</sup>. Similarly improvement was observed in drug treated rats. Recent studies also showing the

cognitive effects on rats via this plant. Root bark used as anti allergic medicines. The extract of leaves helps to sharpen memory, and also showing the anti malarial effects<sup>21</sup>.

The roots of *C. paniculatus* are used as poultice to cure headache. Crushed roots are used in pneumonia. The roots are used to cure excessive pain during menstruation and to induce fertility. The root is prescribed for dysentery, diarrhoea and fever. The powdered root bark of *C. paniculatus* is used in treatment of malaria<sup>24</sup>.

**Ongoing Research:** The researches on the plant *Celastrus paniculatus* is still active on different aspects. It has been conducted to find out the anti cancer drugs like Pristimerin, which derived from the seeds of this plant. It inhibit the growth of a particular type of cancer cells. Yang.et.al.<sup>47</sup>, who conducted the research on pristimerin which is active against nine cancer cell lines. Especially the seed oil of *C. paniculatus* shows a range of interesting pharmacological effects, e.g. a claimed improvement of the learning and memory activity, together with sedative and tranquillizing properties<sup>22,23</sup>. The compounds or fractions responsible for these effects, together with a full investigation of their toxicology involved, are still missing, however, and therefore there is a need for further research. Also the cytotoxic triterpenes merit further investigations to evaluate their possibilities.

*Celastrus paniculatus* is an endangered plant of greater value in the field of medicines so the knowledge about it must be given to the generations. It must be grown on a large scale via governmental or non-governmental companies. The knowledge of this plant must be provided to each and every person of the world via magazines or workshops.

As this plant is very beneficial for human welfare. Instead of losing it we should promote the cultivation of this plant.

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