

# Ethno botanical study and traditional uses of *Celastrus paniculatus*

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## Abstract:

Medicinal plants with their intraspecific variation represent a chemical and medicinal goldmine as is evident from the strong traditions of natural drug use. *Celastrus paniculatus* Wild. mentioned in Ayurveda as „Tree of life“, a plant belonging to family Celastraceae was in use from time immemorial to treat brain related disorders and to enhance learning and memory. The Jyotishmati oil extracted from the seeds of *C. paniculatus* is known to have effect on Central Nervous System. It is used to treat acute and chronic immobilization stress. The oil obtained from the seeds possesses sedative and anticonvulsant properties. Seed oil has been found to be beneficial to psychiatric patients; and increased the intelligence quotient of mentally retarded children. The present review is an attempt to highlight the traditional and ethnobotanical use of the *Celastrus paniculatus*

**Key words:** *Celastrus paniculatus*, Ethnobotanical study, traditional uses, Jyotishmati.

## Introduction:

*Celastrus paniculatus* is commonly known as “Black seed oil plant”. It is large, deciduous, climbing unarmed shrub attaining a height of 10 m, with long slender elongating branches which are reddish brown with stem up to 23 cm in diameter and covered with elongate lenticles, Leaves are simple, alternate, 6-10 by 3-6 cm. ovate or obovate, shortly acuminate, crenate-serrate in upper part, usually entire near base, crenulate, coriaceous, glabrous, base rounded or acute, petioles 6-12 mm long. Inflorescence is paniculate. Flowers yellowish or greenish white, unisexual in terminal pyramidal panicles, 5-15 cm long, pedicels pubescent, bracts small and lanceolate. Calyx pubescent outside; lobes semi-orbicular, ciliate; petals 3mm long, oblong, rounded at apex. Male flowers: stamens inserted on margin of disc, filament short; anthers oblong about 2 mm long; rudimentary ovary small, subconical slightly 3-toothed at apex. Female flowers :ovary globose, narrowed into a short stout style, glabrous stigma large 3-lobed; stamens inserted on the edge of disc which is larger than disc in male flowers, anthers small without pollen, ovate, acute or subtriangular, less than 1mm long. Capsule 9-12 mm in diameter, subglobose, bright yellow, transversely wrinkled, 3-valved, the valves spreading after dehiscing and remaining united at the base exposing seeds. Seeds 1-6, often solitary, completely enveloped in scarlet, fleshy aril (Almeida, 1996; Londhe, 2000; Ramamurthy, 2000). The plants grow as scandent shrubs along the hilly slopes or as climbers at mountain top. It is found in Sri Lanka and Maldives (Mathur et.al., 1993) and widely distributed in Asia, especially in China (Bot. Inst. of Chinese Academy of science, 1985). It is native of Indian continent, but is known to grow wildly in Australia, China, Taiwan, Cambodia, Indonesia, Laos, Malaysia, Myanmar, and Nepal, Thailand, Vietnam as well as many of the pacific islands (Singh et al., 1996).



Fig.1 *Celastrus paniculatus*

### Ethno botanical Study:

Plants- the basis for life on earth have been widely used as source of medicine by man since ancient times. In Himalayan folklore medicines *C. paniculatus* is reported in treatment of hemorrhoids, piles, gout, rheumatism, cold, dysentery, diarrhea, leprosy, snake-bite, wounds (Agarwal, 2010). Codified literature of Himachal Pradesh confirms that fruit juice of *C. paniculatus* is used as cardio-tonic and seeds as appetizer. Paste of the fruit mixed with warm mustard oil is applied on the scalp. Oil (3 drops) is mixed in the egg yolk and given to the patient. Powdered seeds (2-3 gms) are taken orally with water for acidity/gas. Shade dried fruit is ground into a fine powder and sieved. 2-3 tablespoons of powder is taken orally in the morning and evening for 4-5 days to destroy intestinal worms. Oil is applied on infected areas of skin (Tiwari et al., 2010). Local people of Haridwar district, Uttaranchal state; apply a poultice of the paste of *C. paniculatus* leaves and roots in headache. In folk medicine, crushed roots are used in pneumonia (Chopra and Khanna, 2007). Among the Gond tribe of Uttar Pradesh, the powdered root is considered useful for the treatment of cancerous tumors (Parotta, 2001). Tribes of Achanakman-Amarkantak Biosphere Reserve (AABR), Central India apply the root or bark paste on forehead in children to cure boils. The long roots of *C. paniculatus* and fruits of *Piper longam* L. made into paste in boiled rice water is given twice a day against leucorrhoea and spermatorrhoea (Sahu, 2010). Traditional herbal healers of Chhindwara and Betul districts, Madhya Pradesh use the root powder and decoction of seeds of *C. paniculatus* to treat rheumatism (Nath and Khatri, 2010). Tribes of Rewa district, especially Baiga tribes, Madhya Pradesh, use the bark of *C. paniculatus* in herbal medicine. Powdered bark is taken with cow milk once a day for month to cure leucorrhoea (Shukla et al., 2010). The tribal and non-tribal people of Mayurbhanj district of Odisha use pingu-kujri i.e. *C. paniculatus* in the treatment of joint diseases. The seed oil is extracted and applied externally to keep body warmth in the winter season. It is also applied to relieve pain and for proper circulation of blood in body. Seed oil is massaged on the part affected by gout and rheumatism up to the complete cure (Singh et al., 2010). The tribal people of Gujarat use the seed oil in gout. The seed oil is rubbed on affected part. The seed oil of *C. paniculatus* is used in traditional phytotherapy for hair care in Gujarat (Jadeja et al., 2006). The seed oil is applied on hair which makes them silky. Investigations carried on climber resources used by tribal inhabitants of Ambaji forest of Banaskantha district of North Gujarat by Patel et al., (2010) reported that mixed powder of dried leaves, flowers, fruits and seeds of *C. paniculatus* are taken with milk regularly to cure mental disorders and increase mental power (Lebabhai). Boiled leaves are applied externally on swellings and fractures

(Dhanabhai). Seed oil is taken with hot milk to get rid of rheumatism and paralysis (Shamalabhai). Herbal vendors of south India, use the seeds of *C. paniculatus* in ointments which are externally applied on the wound (Chitravadivu et al., 2009). Valaiyans of Karandamalai of South Eastern Ghats of Tamilnadu, give a decoction of the bark of *C. paniculatus* orally on an empty stomach for a period of 7 days to women for the purpose of abortion (Kottaimuthu, 2008). Paliyan tribes of Sirumalai hills of southern India, use the seed powder of *C. paniculatus*, mixed with water. It is taken orally to treat nervous disorders (Karuppusamy, 2007).

The study of ethno medicinal plants of Central Western Ghats in Karnataka reports that, roots of *C. paniculatus* are used to cure excessive pain during menstruation and to induce fertility (Ramanna, 2005). Bhilla tribes of Dhule, Jalagaon and Nandurbar districts of Maharashtra, apply oil of *C. paniculatus* on the joints. They employ it to treat rheumatism and recommend it for painful joints (Kambale et al., 2010 and Patil et. al., 2006). Pawaras, Bhilla and Konkani tribes of Nandurbar district of Maharashtra boil the seeds and crush them to obtain oil. This oil is applied on paralysed parts in morning and evening. The oil is also taken orally, 2 ml each in morning and evening in paralysis (Patil et al., 2010). Medicine men of Buldhana districts prescribed seed oil of *C. paniculatus* to cure paralysis and oil is applied externally on joints till cure (Ahirrao and Patil, 2010). Tribal communities of Purandhar viz Dhangars and Gawalies employ seed oil of *C. paniculatus* externally for joint pain (Bhosale et al., 2009).

## **Traditional medicine:**

The use of plants for treatment in ailments in India dates back to prehistoric times. Ayurveda, an ancient traditional system of medicine that has been practiced in India since 200 B.C., employs a large number of medicinal plants used in prevention and treatment of wide number of diseases. One of these includes the plant *C. paniculatus*, known for the centuries as “Elixir of life”. It is considered in Ayurveda to stimulate „medha” (intellect) and promotes „smruti” (memory) and so Ayurveda recognizes it as „Jyotishmati”. According to Ayurveda, depending upon the dose regimen, *C. paniculatus* may be employed as stimulant nerve tonic, rejuvenant, sedative, tranquilizer and diuretic. It is also used in the treatment of rheumatism, gout (Singh et al, 2010) leprosy, leucoderma, paralysis and asthma (Gattu et.al., 1997). Jyotishmati has been mentioned by Sushruta, Charaka and Vagbhatta as a remedy for mental illness. Charaka gave the decoction of the root or seed internally in prescriptions, as a brain tonic for headache, depression, swooning; as a laxative for cleaning digestive system. Sushruta prescribed internal use of seed oil in neurological disorders, urinary infections, skin affections, intestinal parasites; externally for wound healing and leaves internally as purgative. Chakradatta recommended fried leaves of Jyotishmati for inducing menstruation. The juice of leaves was also given in opium poisoning as a deaddiction aid.

In Ayurvedic classics, the intellect promoting and memory enhancing properties were attributed to the oil of Jyotishmati. The oil, mixed with cow's ghee (clarified butter) was prescribed internally in neurological disorders and as a brain tonic (Bhavaprakasha, Raja Nighanta, Shivadatta Nighanta), Jyotishmati Tailam (Ayurvedic) and Roughae- Malkangani (Unani) the two medicinal oils are available over the counter and are prescribed in Bells palsy, neurasthenia, hemiplegia, lumbago and gout (Khare, 2002 and Singh et al., 2010). In Indian traditional system of medicine *C. paniculatus* is used as appetizer, laxative, emetic, aphrodisiac and used for treatment of cough and leucoderma (Vaidyaratnam, 1994). The bark is reported to have abortifacient activity. It is one of the components of the drug “Mentat syrup” recommended for mental disorders. This has been in use in indigenous medicinal system for centuries with known brain stimulating and anti-oxidant effect (George et al., 2010). In

Siddha writings, besides above efficacy, it is mentioned that the oil from the plant prevents fatigue. Among Thai traditional medicines for treatment of intermittent fever, *C. paniculatus* known as Kra-Thong-Lai is reputed for its medicinal value (Old Style Doctor Association, 1964). The root, stem and leaves were prescribed for dysentery, diarrhea and fever. Northeast folk medicine practitioners prescribed stems as lactagogue. The powdered root barks of Kra-Thong-Lai pressed in pills were commercially sold as treatment for malaria (Katchrinnee et al., 1989). It is also reported as antimalarial drug plant by Ayudhaya et al., (1987). In China for a long time the plants of genus *Celastrus* including *C. paniculatus* have been used as natural insecticides (Wakabayashi et al., 1988) and also as important folk medicine to treat fever, chill, joint pain, edema, rheumatoid arthritis and bacterial infection (Chen and Liang, 1999).

## Conclusion:

*C. paniculatus* is being used traditionally and several other uses are practiced in the tribal populations. Modern researches are revalidating the tribal uses of Jyotishmati. The indiscriminate use of seed and fruits may lead to *Celastrus* in the list of endangered plants. So its other part should be thoroughly studied experimentally and clinically. Now research regarding the other parts of this plant (stem bark, root, leaf) is required to establish the useful therapeutic profile of the whole plant and to prove the ethnobotanical importance through scientific study.

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