

Technical Bulletin on
Celastrus paniculatus (*Malkangani*)
A High Value Medicinal Plant Species



Celastrus paniculatus

Chief Conservator of Forest (Silviculture)

Botanical Name	:	<i>Celastrus paniculatus</i>
English Name	:	Climbing Staff Tree, Intellect Tree, Black-Oil Plant
Sanskrit Name	:	Jyotishmati, Katabhi, Jyotishka, Kangani
Hindi name	:	मालकांगनी
Family	:	Celastraceae

Introduction

Celastrus paniculatus is a deciduous woody liana also known as Malkangani, Jyotishmati, Black oil plant, climbing staff tree, intellect tree etc. is a large, woody climbing shrub, up to 10 m. in height, distributed almost all over India, up to an altitude of 1800 meter and also found in the middle and south Andmans. In southern Rajasthan, *Celastrus paniculatus* is found naturally in some forest areas of Gogunda, Sayra, Jhadol, Mount Abu, etc. But its population density is very low.



Malkangani Flower

It was assessed as a vulnerable species in Rajasthan in a camp workshop organized by Rajasthan Forest Department and FRLHT Bangalore.

Its seeds have commercial market value due to its important medicinal properties. Owing to its important medicinal properties and commercial market, it becomes necessary to multiply this important species in suitable forest areas by planting nursery-raised seedling.

The leaves are simple, broad, and oval, ovate or elliptic in shape, with serrate margins. The Intellect tree, or *Celastrus paniculatus*, is a climbing shrub. The flowers are unisexual, small, greenish white or yellowish green. The fruits are globose, yelloish-orange, 1-6 seeded and transversely wrinkled. The seeds are ellipsoid or ovoid, yellowish- or reddish-brown in color, enclosed in scarlet aril, which stains yellowish orange. The seed of *Celastrus paniculatus* are bitter in taste and have an unpleasant odour. The seeds, on extraction with petroleum ether, yield dark brown oil (52%) known as Malkangani Oil or Celastrus oil. The seeds contain fatty acids and alkaloids, and have sedative and antidepressant properties.



Malkangani Fruits

Medicinal Uses :

- ★ Seed possess emetic, diaphoretic, febrifugal and nervine properties and are used for sharpening the memory, also used to cure sores, ulcers, rheumatism and gout. The seeds are taken as a tonic with sugar and ghee.
- ★ The oil possesses the medicinal properties of the seeds. Its action as a powerful stimulant is followed in a few hours by diaphoresis, unattended by exhaustion. It is used in scabies, body and rheumatic pains, wounds, eczema, beriberi and paralysis.
- ★ As the chief ingredient of drugs, the oil showed good result in treating mental depression and gave excellent results in hysteria without any side reaction.
- ★ The alcoholic emulsion (96%) of the oil showed anti-bacterial activity against gram positive and gram-negative bacteria.
- ★ The oil repels mosquitoes when applied to the body. It is sometimes substituted for edible oil and is also used for illumination.
- ★ The herb is one of the constituents of the commercial drug GERIFORTE which is given in Senile Pruritus with encouraging response and it also has anti- stress properties.
- ★ The bark is considered to be an abortifacient and its dry power is sprinkled on cuts for healing. A decoction of the wood is used in stomach disorders.



Malkangani Seeds

Methodology of Germination of Malkangani :

For raising seedlings in nurseries, seeds are the important means of propagation, but it has been experienced that seed germination and speed of germination is not only erratic but also low and takes more time to complete, which results in prolong germination, irregular seedling growth etc. To enhance seed germination there is usually a back- up with hormonal treatments, such hormones includes GA_3 and Kinetin.

Experimental Trial at Baanki Research Farm, Udaipur :

A trial was conducted at Banki Research Farm "Effect of hormones GA_3 and Kinetin on the seed germination of *Celastrus paniculatus*. Solution of different concentrations 50,100,200,300,400 and 500 ppm were used as a hormonal treatment

120 seeds with three replications were soaked for 24 hours in respective concentration of all the above-mentioned hormones, at room temperature. For control 120 seeds with three replications were soaked for 24 hours, in water at room temperature

Seeds were collected during month of October and treated seeds with hormone were sown in root trainers cells filled with soil, sand and vermicompost in ratio of 1:1:1 and kept on stands in agrinet house. Regular watering and weeding as per requirement were carried out in root trainer cells and periodic observations were taken for germination of seed for all the treatment given. Germination percentage of seeds for each treatment were recorded in the table.

Observation

S. No.	Treatment	Germination percentage									
		In 3 weeks	In 4 weeks	In 5 weeks	In 6 weeks	In 7 weeks	In 8 weeks	In 9 weeks	In 10 weeks	In 11 weeks	In 12 weeks
1	T ₁₃ Without any treatment (Dry seeds)	0.83	8.33	13.61	17.77	17.77	18.33	18.88	19.16	19.16	19.16
2	T ₀ Control (Distil. water)	1.38	13.88	17.77	20.55	21.94	22.50	23.05	23.61	23.88	23.88
3	T₁ 24 hours soaking in GA₃ 50 ppm solu.	10.55	21.38	23.88	25.55	26.11	26.66	26.94	26.94	26.94	26.94
4	T ₂ 24 hours soaking in GA ₃ 100 ppm solu.	7.22	17.50	20.27	21.38	21.66	21.94	22.22	22.50	23.05	23.05
5	T ₃ 24 hours soaking in GA ₃ 200 ppm solu.	7.77	20.00	22.50	23.33	23.33	23.88	24.44	24.44	24.72	24.72
6	T ₄ 24 hours soaking in GA ₃ 300 ppm solu.	4.44	14.16	18.33	20.83	21.11	21.38	21.66	21.94	21.94	21.94
7	T ₅ 24 hours soaking in GA ₃ 400 ppm solu.	3.88	10.83	13.33	13.61	14.44	14.72	15.00	15.00	15.00	15.00
8	T ₆ 24 hours soaking in GA ₃ 500 ppm solu.	3.33	8.05	9.16	10.27	10.83	10.83	10.83	10.83	10.83	10.83
9	T ₇ 24 hours soaking in Kinetin 50 ppm solu.	3.88	10.00	14.16	16.38	16.66	17.50	18.05	18.33	18.61	18.61
10	T ₈ 24 hours soaking in Kinetin 100 ppm solu.	2.50	9.54	13.88	15.55	15.83	16.66	16.66	16.94	16.94	16.94
11	T ₉ 24 hours soaking in Kinetin 200 ppm solu.	1.11	8.61	12.22	13.61	14.44	15.83	16.11	16.38	16.66	16.66
12	T ₁₀ 24 hours soaking in Kinetin 300 ppm solu.	2.50	10.83	13.88	16.94	17.50	18.88	18.88	18.88	18.88	18.88
13	T ₁₁ 24 hours soaking in Kinetin 400 ppm solu.	2.22	10.27	14.44	16.94	18.05	18.33	18.33	18.61	18.61	18.61
14	T ₁₂ 24 hours soaking in Kinetin 500 ppm solu.	1.94	10.83	14.16	15.83	16.66	18.05	18.05	18.33	18.33	18.33

Conclusion :

Germination starts late in seeds of Malkangani (*Celastrus paniculatus*). Seeds soaked for 24 hours in 50 ppm solution of GA₃ resulted in 23.88% in 5 weeks and 25.55% in 6 weeks. However, the highest germination was 26.94% with GA₃ 50 ppm solution after 12 weeks. **It is better to consider the duration 1-1.5 months sufficient after sowing which results in 24-25% germination.** As an alternate method seed soaked in distilled water for 24 hours result is slightly low percentage 17-20% in same duration.



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