

Forest Research & Education Project- Technical Bulletin No: 13

Technical Bulletin on *Ougeinia oogeinsis* (Tanas)

A High Value Medicinal Plant Species



Office of the Chief Conservator Of Forest (Silviculture)
Grass Farm Nursery, Khatipura Road, Jaipur-302012

Name: *Ougeinia oogeinsis*, (Roxb.) Horchr. (*Ougeinia dalbergioides*, Benth.) Syn: *Dalbergia ougeinensis*

Etmology: From Ujjain, a town in Central India. Whence seeds of *Ougeinia oogeinsis* were sent in 1795 to Dr Roxburgh, Calcutta Botanical Garden.

Common Name: Tanas, Sandan, Panjan, Tinsa, Chariot tree, Panan (Hindi)

Family: Fabaceae, Sub-order-Papilionaceae

Plant Status: A Conservation Assessment and Management Prioritization (CAMP) workshop to assess the threats to medicinal plants of Rajasthan was organized by Forest Department, Government of Rajasthan & coordinated by FRLHT, Bangalore as an outcome of CCF II Project funded by UNDP and implemented through MoEF (GOI), in FTI, Jaipur from 10 – 13 September, 2007. *Ougeinia oogeinsis* was declared as one of the Red- Listed (endangered species) species among 39 other medicinal plants species for the State of Rajasthan. It is categorized as an endangered species by IUCN (International Union for Conservation of Nature)



Description: A small to medium size semi deciduous tree, 6-12 m high, with grey or light brown bark, deeply cracked. Leaves of 3 leaflets; leaflets pubescent, broadly ovate, sinuate or crenate, laterals nearly sessile, 4-7.5 cm, terminal, one stalked, 5-15 cm. leaves, first pair simple, opposite, subsequent leaves trifoliate. The ovate leaflets are generally 6-12 cm long and 2-15 cm wide, but size varies greatly. Leaf margin are entire. Young leaves deep coppery red, older leaves green, paler beneath. The old leaves are shed in January- February, turning yellow before falling, and the new leaves appear in March- April. Young leaves deep coppery red, older leaves green, paler beneath. The old leaves are shed in January- February, turning yellow before falling, and the new leaves appear in March- April. Flowering trees are conspicuous and offer a beautiful sight, making Tanas a versatile ornamental tree. The light pink to white flowers emerges in clusters from February to March. The previous year's branches generally do not bear flowers. Branches bearing flowers are leafless, while others retain leaves. The inflorescence is short racemose crowded at joints of old branches; stalks pubescent, thread-like, often clustered. Calyx pubescent, bell-shaped; teeth 5. Petals white or pale pink, much longer than the calyx: standard broad, erect, notched; keel slightly curved, obtuse, near as long as the wings. Upper stamens free, others united. Style incurved, stigma small. The pods form quickly, and ripen in May- June and falls mainly in June. They are glabrous, flat, are 5-10 cm long and 1 cm wide, flat jointed, light brown, with 2-5 seeds. The smooth light brown seeds are 10-12 mm long and 5 mm wide. The tree does not seed abundantly every year. Primary root long, terete, tapering, wiry: lateral roots moderate in number, fibrous: nodule present.

National distribution : *Ougeinia oogeinsis* is native to sub- tropical regions of India and is found in Outer Himalayas, Northern India & Western peninsula ascending up to 4000 ft. Its distribution range extends to Punjab, Madhya Pradesh, Orissa, Uttar Pradesh, Tamil Nadu, Karnataka, West Bengal, Rajasthan (tree is of small size & not in abundance), Maharashtra and Chhattisgarh. This species is not found in wet regions. Tanas grows well on dry exposed sites and eroded hills. Its best growth and greatest size is attained in lowland alluvial soil.



Current regional distribution: Sirohi (Mount Abu), Udaipur (Jargaji, Phulwari Wild Life Sanctuary, Ramkunda, Ladan, Kamalnath, Kirat, Paba, Jhameri, Naal Sandol, Udheswar, Dhariabad, Rajsamand (Kumbhal Garh, Kailwara), Chittorgarh (Sitamata, Deogarh, Pratapgarh), Baran (Sahabad)

Uses:

Wood: *Ougeinia oogeinsis* yields a valuable timber. The heartwood is light golden brown, hard, strong, heavy and elastic. Tanas timber is used in the manufacture of carts, agriculture implements, sugarcane crushers, textile mill shuttles, spindles, construction timbers and furniture. It is a special timber used for making of marine plywood.

Fodder: The leaves are highly valued as cattle feed. In some areas, natural stands of this species are such important fodder resources that timber harvesting is forbidden. Leaves contain 12-15 % crude protein.

Misc. uses: Bark fibers are suitable for making rope. The bark is used as fish poison. The tree is a host plant for lac producing insect. The resulting shellac is of high quality.

Medicine: Whole parts of the plant are rich in secondary metabolites, which impart miraculous medicinal uses of the plants. The plant holds great promise as a commonly available medicinal plant and it is indeed no surprise that the plant is referred to in the Indian traditional circles. The bark and leaves are used in the treatment of Jaundice. The bark is used against fevers and sap exudates are used to make a medicine against dysentery. The bark is also used as astringent, acrid, cooling, stimulant, anti-inflammatory, constipating, urinary astringent anthelmintic, hypoglycemic, and for wound healing activities. The extract of the whole plants showed anti-inflammatory, hypotensive- action, antioxidant activity, and wound healing activities.

Propagation Technique: *Ougeinia oogeinsis* is readily propagated from seed. Seed do not retain its viability for long and should be used within 12 months of maturity. Collected seeds should be properly dried up and stored in sealed container. One kilogram seed contain 28,000-33,000 seeds. Numbers of pods per kilogram is 12,350-15,500. Direct sowing is very successful and highly recommended. Seeds are sown in poly bags in May to September. They take 5 to 15 days to germinate. Nursery propagation accelerates seedling growth, however the large taproot on Tanas makes transplanting difficult. Establishment by stump sprouts gives good results. One year old seedling with root-collar diameters of 5 cm. is recommended for propagation. It was found that reproduction by stem cutting yield is poor, while planting root cuttings is quite successful. The thicker root cuttings were found to produce more vigorous shoots than the thinner roots. It coppices well and produces root- suckers in great abundance, particularly along steep banks and on hill sides, where suckers may be seen issuing even from the joints on the sides of the cliffs. This characteristic is particularly useful for controlling erosion along steep banks and eroded hillsides. The development of the seedlings is better and mortality is less in slight shade, but in very heavy shade the seedlings do not survive. Young trees and seedlings need a moderate amount of shade. However, once established, *Ougeinia oogeinsis* requires full sun light for its optimal development. A tree spacing of 3 X 6 m is recommended for timber production. Under natural conditions the flat light pods are carried by wind to some distance from the tree immediately before and at the commencement of the monsoon, and germination takes place early in the rains.

A seed germination study of Tanas was carried out at Banki Research Farm Udaipur. Observation and methodology are as under:

Method:

- Fresh ripen fruits were collected in May and healthy seeds were separated from fruits.
- Fresh healthy seeds were dried and stored at room temperature in pet jar.
- Results obtained from seed treatment in the month of May and Sept are tabulated below.
- Treated seeds were sown in root trainer cells of 150 cc filled with soil, sand and vermicompost (1:1:1)
- One seed was sown in each cell.
- The experimental trial was undertaken in net house as well as in mist chamber. Three replications of 120 seeds in each replication were observed for germination percentage.



Observation:**Seeds sown in May 2007 in Net house**

S.No.	Treatment	Germination %									
		In 3 days	In 4 days	In 5 days	In 6 days	In 7 days	In 8 days	In 9 days	In 10 days	In 11 days	In 12 days
1	To Control Without any treatment	28.33	74.72	90.83	92.50	93.88	93.88	94.16	94.16	94.44	95.00
2	T ₁ 24 hours soaking in normal water	43.88	79.16	88.05	91.11	92.50	93.88	94.44	94.44	94.44	94.44

Seeds sown in May 2007 in Mist Chamber

S.No.	Treatment	Germination %									
		In 3 days	In 4 days	In 5 days	In 6 days	In 7 days	In 8 days	In 9 days	In 10 days	In 12 days	In 14 days
1	To Control Without any treatment	40.00	88.33	95.83	95.83	95.83	95.83	95.83	95.83	96.66	97.50
2	T ₁ 24 hours soaking in normal water	68.33	90.83	94.16	96.66	96.66	96.66	96.66	96.66	96.66	96.66

Seeds sown in September in Net house

S.No.	Treatment	Germination %							
		In 4 days	In 5 days	In 6 days	In 7 days	In 8 days	In 9 days	In 10 days	
1	To Without any treatment	78.33	96.11	96.66	97.50	97.50	97.77	98.05	

Conclusion:

Seeds germination trial without any treatment resulted in 90 % germination after five days under protected condition in agrinet house. Therefore it is recommended to use fresh ripened seed obtained from the tree in the month of May-June without any treatment to obtain optimal germination percentage.

Chief Conservator of Forest (Silviculture), Jaipur, Rajasthan

Grass Farm Nursery, Khatipura Road, Jaipur, Rajasthan. Tel.: 0141-2350662

E-mail : silvagrassfarm@yahoo.co.in