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MONOGRAPH
ON
MAIDA TREE
LITSEA GLUTINOSA (LOUR.)ROBINSON

FOREST BOTANY DIVISION
STATE FOREST RESEARCH INSTITUTE
JABALPUR (M.P.)

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FOREWORD

Litsea glutinosa (Lour.) Robinson belonging to family Lauraceae, is an evergreen medium sized tree. It is commonly known as Maida tree. It is distributed from India through Indo-China towards the Malesian area where it occurs in all parts, and northern Australia. It usually occurs in valleys and fairly moist places, but nowhere abundant. In the sub Himalayan tract, it is common in sal forests. In Madhya Pradesh, it occurs as rare species in sal and mixed forests particularly in Chhindwara, Pachmari, Balaghat, Narsinghpur, Rewa, Panna, Amarkantak etc. It occurs up to an altitude 1300 m.

Litsea glutinosa is the multi-purpose species. Its barks and leaves are used as a demulcent and mild astringent for diarrhea and dysentery, the roots are used for poulticing .The oil extracted from the seeds is used in the treatment of rheumatism. Besides its medicinal use, it is also important for timber, fuel wood, fodder and food.

This monograph provides useful information on the distribution and habitat, morphology, flowering and fruiting, natural regeneration, artificial regeneration, utilization, chemical constitution, threat status and conservation measures etc ., of this species for promoting their conservation and for the benefit of interested medicinal practitioners and overall development of forestry, environment and medicinal plant sectors.

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(C.P. Rai, IFS)
Director

CONTENTS

MAIDA TREE
LITSEA GLUTINOSA (LOUR.) ROBINSON

I. KNOWING THE SPECIES

A moderate sized very variable evergreen tree with slightly aromatic leaves and grey smooth corky bark.

SYN. *Litsea chinensis* Lamk , *Litsea geminata* Blume , *Litsea glabraria* A.L. Juss., *Litsea tetranthera* (Willd.) Pers.

Regional Names:

Telgu	:	Narra alagi, Naramamidi
Tamil	:	Mushaippeyetti, elumpurukki, uralli
Oriya	:	Jaisanda
Hindi	:	Maida lakri, Garbijaur
Oudh	:	Medh
Gujarati	:	Maeda lakari
Bengali	:	Kukurchita, Garur, Ratun
Marathi	:	Maida lakadi
Punjabi	:	Meda sak, Chandra, Meda lakri
Nepali & Lepcha	:	Kawala, suppatnyok
Assami	:	Heluka, bagriara

II. DISTRIBUTION AND HABITAT

The genus *Litsea* is a member of the family Lauraceae and comprises more than 400 species which are distributed widely throughout tropical and subtropical Asia, Australia, North America to subtropical South America; 73 species have been recorded in China, most of them located in south and

southwest warm regions , 45 species have been found in Vietnam, until now. *Litsea glutinosa* is an evergreen medium sized tree. It is distributed from India through Indo-China towards the Malesian area where it occurs in all parts, and northern Australia; sometimes planted. *L. glutinosa* is found in mixed primary and secondary forest and thickets. It usually occurs in valleys and fairly moist places, but nowhere abundant. In the sub Himalayan tract, it is common in sal forests. In Madhya Pradesh, it occurs as rare species in sal and mixed forests particularly in Chhindwara, Pachmari, Balaghat, Narsinghpur, Rewa, Panna, Amarkantak etc. It occurs up to an altitude 1300 m.

III. MORPHOLOGY

A small to medium-sized tree up to 20 m tall, bole straight or curved, up to 60 cm in diameter, not buttressed, bark surface greyish-brown, inner bark yellowish. Leaves arranged spirally, 10-30 cm x 3-13.5 cm, blunt or rounded, hairy on main veins above, yellowish hairy below, midrib raised or flattened above, with 6-11 pairs of secondary veins which are not sunken above, tertiary venation prominent below, petiole 1-3.5 cm long. Flowers in umbellules arranged in racemes on a 0.7-2.5 cm long peduncle, with 0-3 tepals and 9-15 stamens. Fruit depressed globose or globose, 1-2.5 cm across. Several varieties have been distinguished, but their status is uncertain.

IV. SILVICS

The leaf fall occurs from December to February. The new leaves appear before the old ones have all fallen. The flowers appear in rainy season and the fruits ripen in the following cold season. The fruit is a black globose drupe about 0.8cm in diameter. It is a shade loving species with good coppicing capacity. Gamble gives the rate of growth as 2.3 rings per cm of radius. The annual girth increment varies from 2.2 to 2.25cm. The heartwood not distinct, moderately hard, moderately heavy (sp.gr.0.67), fairly straight grained or some what wavy – grained in the radial plane, medium and even – textured.

V. NATURAL REGENERATION

Its natural regeneration is very frequent through root suckers in forest areas. Seedling regeneration is occasional in occurrence.

VI. ARTIFICIAL REGENERATION

The plant may be propagated by seeds or by coppice shoots. It can also be propagated by vegetative means. It prefers shaded places. Germination is very poor and slow, germination is achieved in 15-45 days, though, it has provinance variation in respet of germination potential.

It is a fast growing species. New shoots sprouting from damaged adventitious buds (called coppice shoots) are used for propagation. It can be inter-cultivated with other species of broadleaved-light preference in order to salvage shade coverage in early period. They are planted around the house, and in old cultivated field. Mixed plantation (inter-cultivation) with fruit trees in the ratio of 60% and 40% respectively can be planted in row mixture or cluster plantation. Distance to row by row and tree by tree should be 3m x 3m or 4m x 4m in pure and mixed plantations respectively.

VII. UTILIZATION

1. Use as timber/fuel wood

Litsea's wood has yellowish brown color, moderately hard, fairly durable, termite-free and of good quality. The timber seasons well. It takes a good polish. The wood can be used for furniture, packing cases, agricultural implements. It is suitable for floorboards and ceilings, packing chests and pulpwood. It is also a good fuel wood species.

2. Use as food and fodder

The fruits have a sweet creamy edible pulp. The young leaves are eaten by livestock.

3. Use as medicine

Its bark contains aromatic oil which can be extracted to use in medicine, perfume, industrial glue, and paint. *Litsea glutinosa* is the multi-purpose species. Its barks and leaves are used as a demulcent and mild astringent for diarrhea and dysentery, the roots are used for poulticing .The oil extracted from the seeds is used in the treatment of rheumatism. Some psychopharmacological actions of the essential oil of *Litsea glutinosa* (Lour.) C.B. Rob. have been reported. Effect of essential oil of *Litsea glutinosa* (Lour.) C. B. Rob. on cardiovascular system and isolated tissues have been investigated by same authors. The pounded seeds are also applied medicinally against boils. The leaves and the mucilage in the gum from the bark have been used for poultices. The bark of Litsea glutinosa, "is one of the most popular native drugs and is considered to be capable of relieving pain, arousing sexual power and good for stomach. *Litsea glutinosa* is widely used as a demulcent and as an emollient.

4. Use as Essential oils

The seeds contain aromatic oil which has been used to make candies and soap.

5. Use for paper pulp

The roots yield fibres which are used in Thailand for rope manufacture and for paper pulp.

6. Traditional uses:

It is used to produce incense in religious belief. In India, substance of Sufoof-e musummin has been extracted from the bark of *Litsea*. At international conference on folk medicine and medical trees hold in Indonesia in1990, it was confirmed that several chemical substances which are extracted from *Litsea* can be used in medicine. The mentioned information above asserts definitely on economic values of *Litsea*, especially in medical field. The book named

"Popular vegetables in Vietnam" has described *Litsea* along with its uses such as bark can reduce pain, or disease treatment.

VIII. CHEMICAL CONSTITUENTS

Litsea fruit contains 45% fat in wax including most *laurin* and *olein* used in candle and soap production. Wood of *Litsea* is used for paper production, while leaf for buffalo and cow food. Among components of tree, bark of tree stem contains glue substance and a little oil which can be used for glue, paper industry, additive matter in concrete industry, and incense production. Bark can be smashed to cover in swollen wounds or burn, moreover, it is used for intestine and dysentery disease. Water which soaked with *Litsea* bark also is used as hair oil. Fresh leaves of *Litsea glutinosa* (Lour.) Rob., contains seventy eight compounds in the oil, of which more than 95.18% were terpenoids. The major components were ocimene (13.35%), caryophyllene (27.20%) and bicyclogermacrene (18.16%). Flavonoids and aporphine alkaloids were isolated from *Litsea glutinosa* . A water-soluble arabinoxylan (D-xylose and L-arabinose in the molar ratio 1.0:3.4) was isolated from the mucilaginous bark of *Litsea glutinosa*. Recently, research disclosed that the MeOH extract of *Litsea glutinosa* bark effectively inhibited both Gram-positive and Gram-negative. The petroleum ether extract, ethanolic extract and aqueous extracts of the *Litsea glutinosa* bark have the antibacterial and antifungal activity against Gram positive *Staphylococcus aureus* bacteria using reference standard like Procain pencillin, Gram negative like *Pseudomonas aeruginosa, Salmonella typhi, E-coli* bacteria using reference standard like *Streptomycine sulphate*, and fungal species like *Aspergillus fumigatus* and *Candida albicans* using reference standard like *Griseofulvin*.

IX. IMPORTANT FORMULATION

The bark of *Litsea glutinosa* constitutes the common demulcent drug sold in Indian bazaar under the name of Maida lakri or Maida lakadi.

X. THREAT STATUS AND CONSERVATION MEASURES

Owing to the over exploitation of its bark, this valuable tree has become

vulnerable in Madhya Pradesh and Chhatisgarh and is feared to become endangered soon in other states too. Its conservation and mass multiplication for translocation in the natural habitat is highly essential. It is supplied from forests.

XI.SOURCE INSTITUTIONS FOR DETAILED INFORMATION

1. State Forest Research Institute, Polipathar, Jabalpur 482008 (M.P.).
2. Botanical Survey of India, Central Circle 10 Chatham Lines, Allahabad 211002 (UP).
3. Forest Research and Extension Circle, Rewa, M.P. Forest Department.
4. Council of Scientific and Industrial Research, New Delhi.
5. Forest Research Institute, PO New Forest, Dehradun.
6. Deendayal Research Institute, Chitrakut, M.P.
7. Institute of Wood Science and Technology PO Malleswaram,Bangalore (Karnataka).
8. Department of Biotechnology, Basaveshwar Science College, Bagalkot. Karnataka.

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