2 PLANT PROFILES & REVIEW OF LITERATURE

2.1 Mallotus philippensis (Lam.) Mull Arg

2.1.1 Plant Introduction

Botanical name: Mallotus philippensis (Lam.) Mull Arg

Family: Euphorbiaceae

Common names: Dyers rottlera, Kamala dye tree, Monkey face tree, Orange kamala, red kamala, scarlet croton.

Vernacular names: Hindi - Kamala, Rohini, Sindur

Telugu - Chendiramu, Kunkuma, Sinduri

Tamil - Kapil, Kungumam, Kurangu manjanatti

English - Monkey-face tree

Sanskrit - Kapila, Kampillaka

Synonyms: Rottlera tinctoria - Roxb. Sans

Distribution: Mallotus philippensis (Kamala tree) is a small to medium-sized monoecious tree, up to 25 meters tall of the family Euphorbiaceae. Kamala tree is widely spread, from the western Himalaya, through India, Srilanka, to Southern China, Taiwan and the Ryukyu Islands, Burma (Myanmar), Thailand, and throughout Malaysia to Australia[45].

2.1.2 Ethnomedicinal Uses

The crude powder of Kamala obtained as a glandular pubescence from the exterior of fruits is found to have anthelmintic activity and active against thread worms, hook worms, round worms and earth
worms. The drug was found to be 100% effective against tapeworms. The leaves are bitter, cooling, give appetite, causes flatulence and constipation. The decoction of the bark is used in abdominal pain\textsuperscript{[46]}. The red powder on fruits when mixed with some oil is a good remedy for ulcers\textsuperscript{[47]}.

### 2.1.3 Biological Review

Literature review revealed the following biological activities.

1. Antioxidant property of \textit{Mallotus philippensis} in extractives of fruits and bark\textsuperscript{[48]}.
2. \textit{Mallotus philippensis} is reported to possess anthelmintic activity against tapeworms in rats\textsuperscript{[49]}.
3. Purgative effects of \textit{Mallotus philippensis} in rats have been reported\textsuperscript{[49]}.
4. Two phloroglucinol derivatives isolated from the fruits of \textit{Mallotus philippensis} has been reported to possess antiallergic activity\textsuperscript{[50]}.
5. It has been reported that 3α-hydroxy-D: A-friedelanan-2-one, a compound with antitumour properties is isolated from stem bark of \textit{Mallotus philippensis}\textsuperscript{[51]}.
6. The plant has been described as one of the Medicinal herbs of Chattisgarh, India, with known traditional uses. In ghee and vegetable oils Kamala has been used as an antioxidant\textsuperscript{[45]}.
7. Fruits and bark of \textit{Mallotus philippensis} have been used traditionally to treat stomach ulcers and tapeworms and the
leaves or seeds are used for fungal infections. Seeds are used for wound healing\textsuperscript{[52]}.

8. An ethereal extractives of Kamala (\textit{Mallotus philippensis}) seed induces adverse effect on the reproductive parameters of female rats\textsuperscript{[53]}.

9. Leaves are bitter, cooling, gives appetite, causes flatulence and constipation\textsuperscript{[46]}.

2.1.4 Chemical Review

1. Phloroglucinol derivatives with antiallergic activity was identified from the fruits of \textit{Mallotus philippensis}\textsuperscript{[50]}.

2. Kamaladiol-3-acetate has been isolated from the stem bark of \textit{Mallotus philippensis}\textsuperscript{[54]}.

3. 3α-hydroxy-friedelanan-2-one has been identified from bark of \textit{Mallotus philippensis}\textsuperscript{[51]}.

4. Two new chalcone derivatives from \textit{Mallotus philippensis} has been reported\textsuperscript{[55]}

5. A HPTLC method for the determination of alpha-amyrin in a methanol extract of powdered bark of \textit{Mallotus philippensis} has been developed\textsuperscript{[56]}.

6. Standardization and quality evaluation of \textit{Mallotus philippensis} fruits by simple methods has been developed\textsuperscript{[57]}.

7. Phloroglucinol derivatives have been isolated from \textit{Mallotus pallidus}\textsuperscript{[58]}.
2.2 **Rhodomyrtus tomentosa (Ait.) Hassk**

2.2.1 **Plant Introduction**

**Botanical name:** *Rhodomyrtus tomentosa* (Ait.) Hassk

**Family:** Myrtaceae

**Synonyms:** *Rhodomyrtus parviflora* Alston

**Common names:** Tomentose rose myrtle, Downy rose myrtle, Ceylon Hill gooseberry, Hill Guava.

Leaves of *Rhodomyrtus tomentosa* is shown in Plate 2.2.

**Distribution:** *Rhodomyrtus tomentosa* is a flowering plant, distributed over Southern China, Taiwan and the Philippines, and south to Malaysia and native to southern and southeastern Asia, from India.

2.2.2 **Ethnomedical Uses**

The tender leaves have traditionally been used to treat colic, dysentery, abscesses and as an antiseptic. It also possesses wound healing properties.

2.2.3 **Biological Review**

Literature review revealed the following biological activities.

1. Rhodomyrtone, a natural antibiotic is reported to possess antibacterial activity against Staphyloccocal cutaneous infections[59].
Plate 2.1. *Mallotus philippensis* leaves

Plate 2.2. *Rhodomyrtus tomentosa* leaves
2. Agro’s Dictionary of medicinal plants has reported the traditional use of *Rhodomyrtus tomentosa* in colic, diarrhoea, dysentery, abscesses, furunculosis, and haemorrhage. The concentrated decoction of the leaves has been used as an antiseptic wash for wounds, impetigo and abscesses[^60].

3. New anthracene glycosides from *Rhodomyrtus tomentosa* is reported to stimulate osteoblastic differentiation of MC 3T3- E1 cells[^61].

### 2.2.4 Chemical Review

Literature review revealed the following chemical constituents.

1. Rhodomyrtone, a natural antibiotic for Staphylococcal cutaneous infections has been isolated from *Rhodomyrtus tomentosa*[^59].

2. New Anthracene glycosides from *Rhodomyrtus tomentosa* are reported to be isolated[^61].

3. Rhodomyrtone, a new natural antibacterial drug from *Rhodomyrtus tomentosa* has been reported[^62].

4. Triterpenoids and steroids from *Rhodomyrtus tomentosa* have been reported to be isolated[^63].

5. Acyl phloroglucinols namely Rhodomyrtosones A-C have been isolated from the acetone extractives of *Rhodomyrtus tomentosa* leaves[^64].