



Rubiaceae of South-East Rajasthan: Enumeration of Arboreal Flora

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ABSTRACT: Plant diversity helps in maintaining the wealth of any natural ecosystem and their biodiversity. The South-east Rajasthan are rich in scenic beauty and species diversity. The present work provides floristic observations of family Rubiaceae among whole area of south-east Rajasthan. Rubiaceae is commonly known as *Cinchona* family. Four arboreal species of this family are observed and enumerated in this communication.

KEYWORDS: Angiosperm, Arboreal, Ecosystem, Gamopetalae, Haroti, Rubiaceae

I. INTRODUCTION

The south-east Rajasthan are geographically known as Haroti region. Haroti region covers Kota division of Rajasthan and includes Kota, Bundi, Jhalawar and Baran districts respectively. Haroti plateau is situated at the edge of the Malwa plateau at 23°45' to 25°53' N latitude and 75°9' to 77°26' E longitude in the south eastern corner of Rajasthan. This region has dense floristic diversity suggests various angiosperm plant species includes Rubiaceae family.

The dominant tree species of the south-east Rajasthan are *Anogeissus pendula* Edgew., *Butea monosperma* (Lam.) Kuntze, *Vachellia leucophloea* (Roxb.) Maslin, Seigler & Ebinger, *Senegalia catechu* (L.f.) P.J.H.Hurter & Mabb., *Sterculia urens* Roxb., *Manilkara hexandra* (Roxb.) Dubard, *Lannea coromandelica* (Houtt.) Merr., *Mitragyna parvifolia* (Roxb.) Korth., *Wrightia tinctoria* (Roxb.) R.Br., *Terminalia arjuna* (Roxb. ex DC.) Wight & Arn., *Holoptelea integrifolia* (Roxb.) Planch., *Balanites aegyptiaca* (L.) Delile and *Phanera vahlii* (Wight & Arn.) Benth.

The family Rubiaceae placed with Caprifoliaceae in separate order Rubiales and these are placed in series Infracae by Bentham and Hooker's. Infracae is an important series of Gamopetalae class. The characteristics of this series is inferior ovary, epigynous flower, stamens usually many or as many as corolla lobes. It includes three orders namely Rubiales, Asterasles and Campanulales.

The general vegetative and reproductive characters of family Rubiaceae are: Plant habit herbs or trees, leaves simple, stipules inter or intrapetiolar; inflorescence cymose, flowers epigynous, bisexual, sympetalous, tetra to pentamerous; stamens four to five, free, epipetalous, ovary inferior, mostly axile placentation and fruits capsule or berry. The main wild and ornamental tree and large shrub genera of Rubiaceae of south-east Rajasthan are *Adina*, *Hamelia*, *Ixora*, *Mitragyna*, *Morinda*, *Neolamarckia* and *Pentas*. The present paper deals with arboreal species of Rubiaceae flora of south-east Rajasthan.

II. RELATED WORKS

Related ecological and floristic studies of various part of India have been made by various authors (Agarwal, 1971; Shetty and Pandey, 1983; De Groot, Wilson, and Boumans, 2002; Pandey and Dilwakar, 2008; Vashistha

and Kaur Mandeep, 2013; Gautam and Sharma, 2014 and Sharma, 2021, 2022 and 2023). The present investigation deals with arboreal flora of Rubiaceae in area.

III. METHODOLOGY

The taxonomical survey of area was carried out during the year 2021 to 2023. The aims of the field visit of area are investigated the trees and large shrubs of family Rubiaceae. This observation is based on continuous field visit of area. Observed record and information are noted and communicated in this paper.

IV. EXPERIMENTAL RESULTS

Rubiaceae is an important family of series Infraclass and class Gamopetalae in classification of Angiosperms. Following tree and large shrub species of Rubiaceae (wild and ornamental) are recorded in area:

1. *Adina cordifolia* (Roxb.) Brandis
2. *Hamelia patens* Jacq.
3. *Ixora pavetta* Andrews (Syn. *Ixora parviflora* Vahl)
4. *Mitragyna parvifolia* (Roxb.) Korth.
5. *Morinda tomentosa* B. Heyne ex Roth
6. *Neolamarckia cadamba* (Roxb.) Bosser (Syn. *Anthocephalus cadamba* (Roxb.) Miq.)
7. *Pentas lanceolata* (Forssk.) Defflers (Syn. *Mussaenda luteola* Delile)

Considerable account regarding the morphological characters, common name, flowering and fruiting time, locality and interesting features of tree species of Rubiaceae family of south-east Rajasthan are described in this communication.

1. *Adina cordifolia* (Roxb.) Brandis

Family: Rubiaceae

Common name: Haldu

A large deciduous tree, leaves opposite, broadly oval in shape, heart-shaped at the base and pointed at the tip. Flowers yellow, in round heads up, on long stalks, yellow, fruits very numerous, in round heads, capsules, many seeds.

Fls. and Frs: June to February.

Common in hills and hill slopes of the forests.

The flowers may be insignificant individually but are very pretty when they bloom together in balls with a circumference.

2. *Mitragyna parvifolia* (Roxb.) Korth.

Family: Rubiaceae

Common name: Kalam, Kaim, Kadam

A medium-sized to large tree, bark thick, grey-black, smooth, leaves simple, elliptic-oblong or ovate-oblong, deciduous. Flowers creamy white, in axillary or terminal globose heads, peduncle, fragrant, fruit capsules arranged in globose heads, 10 ribbed, each with 2-follicular cocci, brown, seeds many, winged and small,

Fls. and Frs: August to March.

Very common in hilly tracts, plains, forests and wastelands.

Mitragyna parvifolia (Roxb.) Korth. tree is native to India. Its flowers are yellow and grow in ball-shaped clusters. This species is used medicinally as well as for their fine timber.

3. *Morinda tomentosa* B.Heyne ex Roth

Family: Rubiaceae

Common name: Aal

A small to medium-sized tree, evergreen, stem short and crooked, bark rough with deep longitudinal cuts, leaves simple, large, ovate-elliptic, hairy. Flowers in terminal or axillary heads, tubular, white, scented, fruit green syncarp, fleshy, globose, persistent, seeds oblong or obovoid.

Fls. and Frs: July to December.

Common in wastelands, orchards and along the roadsides and canals.

Morinda tomentosa B.Heyne ex Roth is known as Indian Mulberry. The plant is extensively cultivated in India in order to make the Morindone dye sold under the trade name 'Suranji'. The colouring matter is found principally in the root bark of the tree.

4. *Neolamarckia cadamba* (Roxb.) Bosser (Syn. *Anthocephalus cadamba* (Roxb.) Miq.)

Family: Rubiaceae

Common name: Kadamb

A medium sized to large tree with a broad crown (umbrella shaped), bole straight cylindrical, branches horizontal, vertically shallowly grooved, Leaves simple, ovate to elliptic-oblong, coriaceous. Flowers yellowish-orange, small, in dense globose heads, bisexual, sweetly fragrant, fruits small capsules, on a fleshy globose receptacle, seeds many, irregular shaped to trigonal, small.

Fls. and Frs: April to August.

Neolamarckia cadamba (Roxb.) Bosser are most frequently planted trees along the roadsides, gardens and parks as avenues trees.

The crown of *Neolamarckia cadamba* (Roxb.) Bosser is broad spreading umbrella shaped and sweetly fragrant flowers appear like solid, hairy orange-yellow balls. Its branches are characteristically arranged in tiers. Fruit capsules packed closely together to form a fleshy, yellow or orange coloured infructescence. The small capsules split into four parts and releasing many seed at maturity.

The climate of the area favours the growth of dry deciduous forests. Different plant species of angiosperms grows in different habitat. Four tree species of family Rubiaceae have been enumerated in this study.

V. CONCLUSION

Four arboreal species of Rubiaceae namely *Adina cordifolia* (Roxb.) Brandis, *Mitragyna parvifolia* (Roxb.) Korth., *Morinda tomentosa* B.Heyne ex Roth and *Neolamarckia cadamba* (Roxb.) Bosser have been taken in current consideration. *Mitragyna parvifolia* (Roxb.) Korth. is identified as key stone species in forest ecosystem of area. The present work provides valuable information about the arboreal species of Rubiaceae family of south-east Rajasthan.

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