

Diversity and economic importance of tree species in Narnala wildlife sanctuary (MS)

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Abstract

Narnala wildlife sanctuary encompasses a small part of southern region of Melghat tiger reserve, Amravati Division (MS). This area has rich floral and faunal diversity. Present study is focused on the floral diversity of Narnala wildlife sanctuary with special reference to tree species. This area has typical deciduous tree species with wide range of taxonomic diversity. Altogether 64 tree species from 30 plant families are identified taxonomically, and enumerated in present article. Members of Mimosaceae and Fabaceae were found as most common plant in this region. The tribal inhabitants of foothill were observed to use these plants and plant products for their livelihood as food, fodder, timber, medicine etc.

Keywords: Narnala Wildlife sanctuary, deciduous, taxonomic diversity, tribals

1. Introduction

Indian subcontinent is recognized for its subtropical species diversity. Since ancient ages, this treasure is being utilized by man for its livelihood and other benefits. However, since the commence of industrialization era, anthropogenic activities increases that leads the mass destruction of natural forests. The exploitation of forest plants and plant products also increased during last five decades. These anthropogenic activities results in extinction of many important taxa from natural vegetation. Therefore there is urgent need of careful management interventions to maintain overall biodiversity and sustainability^[1]. Accurate assessment and understanding of the dynamics of plant resources is important for their sustainable management, utilization and biodiversity conservation.

Information with reference to species diversity and distribution pattern may help in evaluating the ecological significance of the study area. Trees occupy the important place in natural vegetation. Trees have always been associated with human wisdom and immortality in India. Trees are important component of the natural forests as they help to prevent soil erosion and make provision of a weather-sheltered ecosystem in and under their foliage. They also play an important role in producing oxygen and reducing carbon dioxide in the atmosphere, as well as moderating ground temperatures. In many developing countries, trees are being used as fuel form and timber material for making houses and household furniture. Several trees possesses mythological, ancient Ayurvedic medicinal significance. Some of three produces resins and gums. Thus, tree also are economically beneficial to mankind.

Narnala Sanctuary is situated in Akot Tehsil of Akola district (Maharashtra state) covering the Satpuda mountain ranges. The total area of the Sanctuary is 12.35 Sq.km. The study area is lies between 23°28 N latitude and 73°18 E longitude. The area is traversed by river, which passes

through middle of the sanctuary. It is a part of Project Tiger Melghat having total area of 2027.29 Sq. Km area. This area is dominated by tribal communities like Gond, Rajgond, Korku, Gawali and Pradhan^[2]. These tribals use the plant wealth of this sanctuary for their livelihood. The present study was conducted during 2014-2015. The study is focused on exploration of tree species from this area and also noted their economic uses as per the tribal communities of this area.

2. Materials and Methods

Several surveys were conducted locate different plant species in different patches of study area during 2014-2015. During the survey each plant was photographed in its natural habitat. The specimens were collected and identified using floras^[3, 4, 5]. Later, each herbarium specimen was deposited in Department of Botany, Shri Shivaji College, Akola (MS). After correct taxonomic identification, each plant was assigned to its respective family and enumerated alphabetically. During collection period, the nearby baseline area of sanctuary which is dominated by tribal inhabitant was interrogated and economic uses of the plants collected was noted.

3. Results and Discussion

The observations of tree diversity in Narnala wildlife sanctuary (MS) are presented in the table-1. The plants are given here alphabetically with their respective families, local names and folk use as per the tribal residents of this area. All tree species reported from the study are deciduous and represent typical subtropical characters. Among the reported tree species, the members of Mimosaceae and Fabaceae were dominant, followed by Rubiaceae, Combrataceae and Moraceae members (Table-1). Most of the tree plants of this area are being used by local tribals as fuel, timber, medicinal components, fruits for raw eating, gum and resins.

Table 1: Tree plants identified from Narnala Wildlife sanctuary along with their family, local names and usage by local peoples.

S. No.	Botanical Name	Family	Local Name	Local usage
1	<i>Acacia chundra</i> (Roxb. Ex. Rottl.) Willd.	Mimosaceae	Khair	Timber
2	<i>Acacia leucophloea</i> (Roxb.) Willd.	Mimosaceae	Hiwar	Timber, gum
3	<i>Acacia nilotica</i> (L.) Del.	Mimosaceae	Babul	Timber, gum
4	<i>Adina cordifolia</i> (Roxb.) Bth. & HK.f.	Rubiaceae	Haldu	Timber, Medicine
5	<i>Aegle marmelos</i> (L.) Corr.	Rutaceae	Bel	Religious, medicine
6	<i>Ailanthus excelsa</i> Roxb.	Simaroubiaceae	Maharukh	Medicinal, resin
7	<i>Annona squamosa</i> L.	Annonaceae	Sitaphal	Food/ fruit/ fuel
8	<i>Anogeissus latifolia</i> (Roxb.) Wall	Combretaceae	Dhavada	Fuel, medicinal
9	<i>Azadirachta indica</i> A.Juss.	Meliaceae	Kadu nimb	Timber, medicinal
10	<i>Bauhinia racemosa</i> Lamk	Caesalpiniaceae	Kanchanar	Medicine
11	<i>Bauhinia variegata</i> L.	Caesalpiniaceae	Apta	Medicine
12	<i>Bombax ceiba</i> L.	Bombacaceae	Semal	Fuel, Timber
13	<i>Boswellia serrata</i> Roxb.	Burseraceae	Salai	Fuel, Medicine
14	<i>Buchnania lanzen</i> Spreng.	Anacardiaceae	Charoli	Food, medicine
15	<i>Butea monosperma</i>	Fabaceae	Palas	Fuel,
16	<i>Casearia graveolens</i> Dalz	Flacourtiaceae	Bakhada	Medicinal
17	<i>Cassia fistula</i> L.	Fabaceae	Amaltas	Fuel, Medicine
18	<i>Cassine glauca</i> (Rottb.) O.Ktze	Celastraceae	Bhutikes	Medicine
19	<i>Chloroxylon swietenia</i> DC.	Rutaceae	Satin wood	Medicine
20	<i>Cordia dichotoma</i> Forst. F. Prodr.	Boraginaceae	Bhokar	Fodder, Medicine
21	<i>Dalbergia latifolia</i> Roxb.	Fabaceae	Sisam	Timber, Medicine
22	<i>Dichrostachys cinerea</i> (L.) W. & A	Mimosaceae	kateri	Fodder, Medicine
23	<i>Diospyros melanoxylon</i> Roxb.	Ebenaceae	Temburni	Food, Medicine
24	<i>Eriolaena hookerina</i> Wight & Arn.	Sterculiaceae	Bother	Medicine
25	<i>Erythrina indica</i> L.	Fabaceae	Pangara	Medicine
26	<i>Ficus bengalensis</i> L.	Moraceae	Vad	Medicine
27	<i>Ficus racemosa</i> L.	Moraceae	Umbar	Medicine
28	<i>Ficus religiosa</i> L.	Moraceae	Pimpal	Religious, medicine
29	<i>Flacourtia indica</i> Comm.	Flacourtiaceae	Lodra	Medicine
30	<i>Gmelina arborea</i> Roxb.	Verbenaceae	Gambhari	Timber, Medicine
31	<i>Grewia tilifolia</i> Vahl	Tiliaceae	Dhaman	Timber, Medicine
32	<i>Hardwickea binnata</i> Roxb.	Fabaceae	Anjan	Timber, Medicine
33	<i>Holoptelia integrifolia</i> (Roxb.) Planch.	Ulmaceae	Palaspapadi	Medicine
34	<i>Ixora arborea</i> Roxb.	Rubiaceae	Lokhandi	Medicine
35	<i>Kydia calycina</i> Roxb	Malvaceae	Homba	Medicine
36	<i>Lannea coromandelica</i> (Houtt.) Merrill.	Anacardiaceae	Moin	Medicine
37	<i>Madhuca longifolia</i> (J.Konig) J. F. Macbr.	Sapotaceae	Moha	Fuel, Medicine
38	<i>Mallotus philippensis</i> (Lam.) Muell.Arg.	Euphorbiaceae	Kumkum	Medicine
39	<i>Mangifera indica</i> L.	Anacardiaceae	Amba	Fuel, Medicine
40	<i>Manilkara hexandra</i> (Roxb.) Dab.	Sapotaceae	Dudhi	Medicine
41	<i>Maytenus emarginata</i> (Willd.) D.Hou.	Celastraceae	Danti	Medicine
42	<i>Mitragyna parvifolia</i> (Roxb.) Korth.	Rubiaceae	Kadamb	Timber, Medicine
43	<i>Morinda tomentosa</i> Heyne. ex Roth.	Rubiaceae	Aal	Medicine
44	<i>Nyctanthes arbortristis</i> L.	Oleaceae	Parijatak	Medicine
45	<i>Phoenix sylvestris</i> (L.) Roxb.	Arecaceae	Tad	Timber, Medicine
46	<i>Phyllanthus emblica</i> L.	Euphorbiaceae	Aonla	Food, Medicine
47	<i>Pithecoelobium dulce</i> (Roxb.) Benth.	Mimosaceae	Vilayati Chinch	Medicine
48	<i>Prosopis cineraria</i> (L.) Druce.	Mimosaceae	Saundad	Fuel, Timber
49	<i>Santalum album</i> L.	Santalaceae	Chandan	Timber, Medicine
50	<i>Schleichera oleosa</i> (Lour.) Oken	Sapindaceae	Kusum	Medicine
51	<i>Semecarpus anacardium</i> L.f.	Anacardiaceae	Bibba	Food, Medicine
52	<i>Soymida febrifuga</i> (Roxb.) A.Juss.	Meliaceae	Rohan	Timber, Medicine
53	<i>Sterculia urenus</i> Roxb	Sterculiaceae	Kadao	Medicine
54	<i>Syzygium cumini</i> (L.) Skeels.	Myrtaceae	Jambul	Food, Medicine
55	<i>Tamarindus indica</i> L.	Caesalpiniaceae	Chinch	Food, Medicine
56	<i>Tectona grandis</i> L.	Verbenaceae	Sagwan	Timber
57	<i>Terminalia alata</i> Hyene ex Roth.	Combretaceae	Ain	Timber, Medicine
58	<i>Terminalia arjuna</i> (Roxb.) W. & A	Combretaceae	Arjun	Timber, Medicine
59	<i>Terminalia bellerica</i> (Gaertn.) Roxb	Combretaceae	Bihada	Medicine
60	<i>Terminalia chebula</i> Retz.	Combretaceae	Hirda	Medicine
61	<i>Trema orientalis</i> (L.) Blume	Ulmaceae	Kapsi	Medicine
62	<i>Vitex negundo</i> L.	Verbenaceae	Nirgudi	Medicine
63	<i>Wrightia tomentosa</i> R. & S.	Apocynaceae	Dudhi	Medicine
64	<i>Xeromphis spinosa</i> (Thunb.) Keay.	Rubiaceae	Mindhal	Medicine

It was observed that, amongst the identified tree species of Narnala wildlife sanctuary, inhabitants are using about 87% tree species for making traditional medicinal preparations and more than 28% as timber. Some plants or plant parts are also known as potential foods, fodder, fuel etc (Fig. 1). Mostly of the tree plants observed in study area are with multiple uses for its tribal inhabitants.

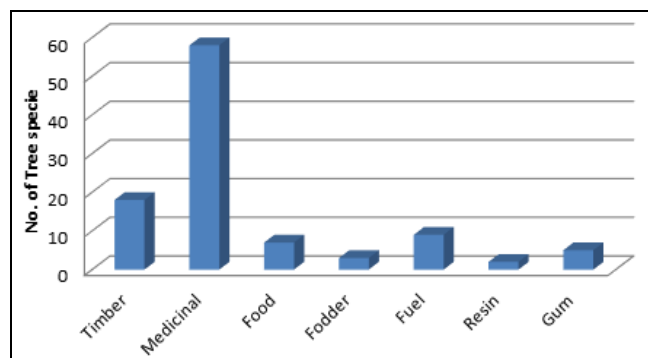


Fig 1: Usage of different tree species from Narnala Sanctuary.

Species diversity is one of the analytical tools applied in determining the degree of variability of species within a community or a region. It is a count of the different species present in an area. Species richness is essentially a measure of the number of species in a defined sampling area. And it is the basic component of diversity of any community. Trees are the major structural component of forest ecosystems, and these forests are disappearing at an alarming rates owing to deforestation for extraction of timber and other forest produce [6].

Depletion of natural forest wealth is one of common cause of concern. Several ecologists and plant conservators have tried to assess the diversity of floristic components earlier [7, 8]. In Indian subcontinent, few workers documented the tree species diversity in different forest areas [1, 9, 10, 11, 12]. Our present study is in analogy of these reports. This study represent the current diversity of tree species in study area and the threat of local tribals which will help to develop strategy for conservation of natural flora of this region.

4. References

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