SHORT COMMUNICATION

ASSESSMENT OF FLORAL DIVERSITY IN DHAMTARI DISTRICT OF CHHATTISGARH

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Abstract: The central India forms one of the major ecosystems of the Indian subcontinent and constitutes a large tract of tropical dry deciduous and tropical moist deciduous forest type. The Dugali and Nagari is a small patch of forest which is near the Dhamtari district and exists in Chhattisgarh a newly formed state. These forest areas conserve a variety of flora and fauna. The present paper gives an account of assessing the floral diversity in the vicinity of Dhamtari district. A study of the floristic composition and its use by the rural people is also in corporate. The present articles describe the species diversity and structural variation of a tropical dry deciduous and tropical moist deciduous forest type of central India. In the present study 7 climber species, 3 shrubs, 4 herbs species and 40 trees are reported.

Keywords: Biodiversity, ecosystem, endangered, flora, sanctuary

INTRODUCTION

Indian subcontinent represents a very rich wealth of diversified flora and fauna. Plant diversity assessment and documentation is the first step ahead before the next step of conservation of these biological resources. As per Heywood (1995) plant diversity documentation requires surveying, sorting, cataloguing and quantifying. Without documenting of these biodiversity there is a no means of conservation. Good biodiversity is always making the good environments which are helpful for people for many purposes. Biodiversity balance the food chain, food web, CO_2 sequestration, nutrient cycling and livelihood of human being (Jhariya and Raj, 2014). Myers *et al*. (2000) have identified 25 terrestrial biodiversity hot spot and also recognized 9 leading hot spots. The leading hot spot are richer in endemics than other hot spots. Forest is world's most valuable natural resource which is a store house of biological diversity. Trees played and will play a major role to check and stop soil erosion, floods and drought and mitigate the climate change. As per Seth (2004) and Panna *et al.* (2009) tree meets the need of timber, fuel, medicine and other commercial products, which are indispensable requirement of human being. The total forest cover, which includes dense forest, open forest and mangroves, is estimated to be 692,027 km^2. This constitutes 21.05% of the country's geographic area (FSI, 2011). The state Chhattisgarh having 44% of forest cover of the total geographical area, and forest type of Chhattisgarh is tropical moist and tropical dry deciduous which bears a lot of ground flora and fauna too.

MATERIAL AND METHOD

The present study was conducted during summer season during 2013-2014 in the Nagari and Dugali forest area in Chhattisgarh. These forest areas are 55 km far away from Dhamtari district of southern region of Chhattisgarh and situated between 20°42' N latitude and 81°33' longitude. It has an average elevation of 305 m above sea level. The climate of the area is tropical with temperature is ranging from 35^0 C to 12.4^0 C and annual rainfall is 1372.5 mm. The total area of forest is 8760 ha which is 2.14% of total geographical area of Dhamtari (408190 ha). The forest area topography is almost level. The species were observed and identified with the help of local of villages in the forest area and forest guards. Quadrates of 10m x 10m for trees and 5m x 5m for shrubs were laid. The un-identified plants were collected and a herbarium sheet was prepared and identified with the help of local floras. Finally, plants were documented by following their botanical name, family, habits, local name, parts use and uses of the individual plants.

RESULT

The study area did not show uniform distribution of tree, shrubs, herbs and climbers. A total number of 54 plant species belonging to varied families (24) with different habits were recorded (Table 1). Out of these plants species, herbs (4), shrubs (3), climbers (7) and trees (40) were noticed. Maximum plant species were recorded for Leguminosae family. Observed plant species with their local name, botanical name, family, habit, part use and their uses are listed in Table 1. Table 2 shows the family wise distributions of plants and Table 3, the number of different habits is given.

Table: 1. floral diversity in the forest area

Local Name	Plant Species	Family	Habit	Parts Used	Uses
Sal	*Shorea robusta*	Dipterocarpaceae	Tree	Bark, resin	Useful in cough and pitta, ulcers, seminal weakness and burning of eyes.
Pula	*Kydia calyicina*	Dipterocarpaceae	Tree	Leaves	Skin diseases
Semal	*Bombox cieda*	Bombacaceae	Tree	Bark	Treatment of skin eruptions and ulceration.
Bhilma	*Semecarpus anacardium*	Anacardiaceae	Tree	Fruits	Digestive, purgative, liver tonic stimulant.
Dhaman	*Grewia tiliifolia*	Rutaceae	Tree	Leaves , fruits	Useful in diarrhea and dysentery.
Bael	*Aegle mormelos*	Rutaceae	Tree	Leaves, fruits	Useful in diarrhea, dysentery, seminal weakness etc.
Saliha	*Boswella serrate*	Burseraceae	Tree	Roots	Treatment of syphilitic diseases and jaundice.
Chare	*Buchanania lanzam*	Anacardiaceae	Tree	Leaves	Used as cardiac tonic for cardiac disorder.
Aam	*Mangifera indica*	Anacardiaceae	Tree	Fruits and Woods	Useful for syphilis, wounds, ulcers and diphtheria.
Palas	*Butea monosperma*	Leguminosae	Tree	Bark, Leaves, Flower	Useful in cure of intestinal worms, bone fractures and rectal diseases.
Shisham	*Dalbergia sissoo*	Leguminosae	Tree	Leaves Wood	useful in the treatment of skin diseases, leucoderma
Bija	*Pterocarpus marsupium*	Leguminosae	Tree	Stems	Treatment for diabetes
Amaltas	*Cassia fistula*	Leguminosae	Tree	Leaves Roots seeds	Useful in the treatment of skin diseases, leprosy, tuberculosis.
Imli	*Tamarindus indica*	Leguminosae	Tree	Fruits	Fruit is edible
Babool	*Acacia nilotica*	Leguminosae	Tree	Bark, roots Leaves	Used for haemostatic, asthma and diarrhea.
Siris	*Albizia lebbeck*	Leguminosae	Tree	Seeds	Used in asthma, leprosy, leucoderma, sprain and wounds
Chichwa	*Albizia odoratissima*	Leguminosae	Tree	Wood Leaves	Timber and fodder
Safed siris	*Albizia Procera*	Leguminosae	Tree	Wood	Agricultural implements
Dhaora	*Anogesssus latifolia*	Combretaceae	Tree	Whole plant	Useful in cough and vata, skin disease, diarrhea and dysentery
Arjun	*Terminalia arjuna*	Combretaceae	Tree	Bark , Leaves	Useful in fractures, ulcers, diabetes, internal and external hemorrhages.
Bahera	*Terminalia bellirica*	Combretaceae	Tree	Fruits	Useful in anemia, leucoderma, narcotic and digestive.
Harra	*Terminalia chebula*	Combretaceae	Tree	Bark, Fruits	Useful in tridosa, neuropathy and general debility.
Jamun	*Syzygium cumini*	Myrtaceae	Tree	Seeds	Useful in diabetes and strengthening the teeth.
Kumbhi	*Coreya arborea*	Lecythidaceae	Tree	Bark	Treatment of diarrhea
Seja	*Lagerstroemia parviflora*	Lythraceae	Tree	Bark	Treatment of snake –bite
Haldu	*Adina cardifolia*	Lythraceae	Tree	Bark	Used for skin diseases
Mundi	*Mitragyna parvifolia*	Lythraceae	Tree	Bark	Contraceptive
Tendu	*Diospyros melonoxylon*	Ebenaceae	Tree	Seeds	Spermatorrhoea and urinary disorders
Gamari	*Gmelina arborea*	Verbenaceae	Tree	Fruits Wood	Useful in fever, dyspepsia, skin disease and promoting the growth of hair
Kasai	*Bridelia retusa*	Euphorbiaceae	Tree	Fruits Wood	Edible and agricultural implements.

Garari	*Cleistanthus collinus*	Euphorbiaceae	Tree	Leaves	Use for fish Poison
Bargad	*Ficus benghalensis*	Moraceae	Tree	Bark	Useful in the treatment of diarrhea, dysentery and diabetes
Peepal	*Ficus religiosa*	Moraceae	Tree	Fruits	Used as aphrodisiac, antibacterial and purgative.
Mahua	*Madhuca indica*	Sapotaceae	Tree	Bark, Heartwood, Fl owers, Fruits, Seeds.	Used in cooking, adulteration of Ghee, manufacturing chocolates and even soaps
Pakar	*Ficus cunia*	Moraceae	Tree	Seed and fruit	Edable fruits
Sinduri, Roli	*Mallotus phillippensis*	Euphorbiaceae	Tree	Capsules or fruits	Used in colouring silk and wool.
Kullu	*Sterculia urens*	Malvaceae	Tree	Whole tree	Used in foodstuffs as emulsifiers, stabilizers and thickeners.
Lasura	*Cordia dichotoma*	Boraginaceae	Tree	Fruits and leaves	Prickle, timber, fodder.
Tinsa, Sandan	*Ougeinia oojeinsis*	Leguminosae	Tree	Bark	Medicinal use and timber
Saja	*Terminalia tomentosa*	Combretaceae	Tree	Bark	Medicinal use, fodder and timber
Charota	*cassia tora/ Sena tora*	Leguminosae	Herb	Roots, Leaves, and Seeds	Treatment of Constipation, cough, bronchitis, cardiac disorders.
Satavar	*Asparagus racemosus*	Liliaceae	Climber	Whole plants	Treatment of gastric ulcers, dyspepsia, nervous disorder
Gudmar	*Gymnema sylvestre*	Asclepiadoideae	Herb	Whole plants, root	Treatment of diabetes, antidote for snake bite.
Raimunia	*Lantana camara*	Verbenaceae	Shrub	Leaves	Ornamental, Fever,antiseptic,antispasmodic,a ntipyretic
Malkangni	*Celastrus paniculatus*	Celastraceae	Climber	Bark,roots	Used for abortion
Chirchita	Achyranthus aspera	Amaranthaceae	Herb	Leaves,roots	Treatment for Stomach disorders, diarrhea and dysentery
Bantulsi	*Ocimum camum*	Labiatae	Herb	Leaves, whole plant	Treatment for cough, diarrhea, convulsions, fever and cold
Dhawi	*Woodfordia fruticosa*	Lythraceae	Shrub	Flowers	Used in wound healing
Gunja	*Abrus precatorius*	Leguminosae	Climber	Root, leaves and seeds	Treatment for colds, cough, convulsion and rheumatism
Baichnadi	*Dioscorea hispida*	Dioscoreace	Climber	Tuber and leaves	Treatment for Arthritis, rheumatism, vomiting and malaria.
Ramdaton	*Smilax microphylla*	Liliaceae	Climber	Tuber and leaf	Medicinal use, mouth brush
Mahul	*Bauhinia vahlli*	Leguminosae	Climber	All parts	Used for fodder to make mats and containers for food stuffs
Phetra	*Gardenia turgid*	Rubiaceae	Shrub	Fruit and root	Skin disease
Gunja	*Abrus pulchellus*	Leguminosae	Climber	leaves, Root	Treatment for cough and gonorrhea

Table 2. Plant species distribution according to their families

S/N	Family	Number of species
1	Malvaceae	1
2	Moraceae	3
3	Euphorbiaceae	3
4	Verbenaceae	2
5	Ebenaceae	1
6	Lythraceae	4
7	Lecythidaceae	1
8	Myrtaceae	1

9	Combretaceae	5
10	Sapotaceae	1
11	Boraginaceae	1
12	Leguminosae	14
13	Anacardiaceae	3
14	Labiatae	1
15	Burseraceae	1
16	Rutaceae	2
17	Bombaceae	1
18	Dipterocarpaceae	2
19	Liliaceae	2
20	Asclepiadoideae	1
21	Celastraceae	1
22	Amaranthaceae	1
23	Dioscoreace	1
24	Rubiaceae	1

Table 3. Distribution of plants as per their habit

S/N	Habit	Number of plant species	Distribution (%)
1	Tree	40	74.07
2	Herb	4	7.40
3	Shrub	3	5.55
4	Climber	7	12.96
5	Total	54	100.00

DISCUSSION

On the basis of the present finding, it is concluded that the forest area is enriched with various plants of different habits including herbs, shrubs, trees and climbers. This diversity shows the variability among flora and it is essential to get knowledge about the plant species for assessment, though further strategy is needed to conserve them. This study indicates their rich diversity, followed by various habits (herbs, shrubs, climbers and trees) due to suitable climatic condition as well as their survival capacity in this forest area. In the forest area, tree species are mostly seen as they cover a larger part of the area (40 species of 74.07%), and are closely followed by climber species (7 species of 12.96%) and herb species (4 species of 7.40%) but shrubs (3 species of 5.55%) are least of them all.

Further, the trees like *Shorea robusta*, *Terminalia arjuna*, *Terminalia tomentosa*, *Anogeissus latifolia* and *Diospyros melonoxylon* were found dominant in forest area. Climber like *Bauhinia vahlii*, *Asparagus racaemosus*, *Gardinia tergida*, *Woodfordia fruiticosa* etc. trees like *Terminalia tomentosa*, *Terminalia arjuna*, *Terminalia chebula*, *Shorea robusta*, *Ougenia oojensis*, *Syzigum cumini*, *Diospyrus melonoxylon*, *Pterocarpus marsupium*, *Semecarpus anacardium* etc. indicates moist deciduous habitat.

Such economically important trees are also grouped under different categories as below based on their uses.

Wild-edible fruits: *Diospyros melonoxylon* Roxb., *Buchanania lanzan Spreng.*, *Madhuca indica*, *Mangifera indica L.*, *Syzygium cumini*, *Tamarindus indica L.*, *Aegle mormelos*, *Ficus benghalensis*, *Ficus religiosa* and *Ficus conia*.

Tannin yielding trees: *Careya* arborea, Diospyros *melonoxylon* Roxb., *Terminalia bellirica*, *Terminalia chebula*, *Acacia nilotica*, *Anogesssus latifolia*, *Cassia fistula*, *Lagerstroemia parviflora Roxb.*, *Semecarpus anacardium* and *Mallotus phillippensis.*

Gum-yielding trees: *Acacia nilotica*, *Boswella serrate Roxb.*, *Butea monosperma*, *Sterculia urens*, *Anogesssus latifolia Roxb.*, *Buchanania lanzam Spreng.*, *Terminalia bellirica*, *Lavea grantis* and *Careya* arborea.

Timber yielding trees: *Acacia nilotica*, *Albizia lebbeck*, *Albizia odoratissima*, *Albizia Procera*, *Anogesssus latifolia*, *Bombax ceiba*, *Cordia dichotoma*, *Dalbergia sissoo*, *Gmelina arborea*, *Ougeinia oojeinsis*, *Terminalia arjuna*, *Terminalia tomentosa*, *Shorea robusta*, *Adina cardifolia*, *Boswella serrate* and *Pterocarpus marsupium*.

CONCLUSION

Assessment of floral diversity is very important step for need of conservation of that resource. Without assessment and documentation there is a no means of conserving the biological resources including flora and fauna. Due to increasing population pressure with increasing need of food and shelter are necessitates the deforestation. It is time to conserve this forest treasure through assessment of unknown flora, which is an important part of humankind by giving all tangible and intangible products. Further, information of plant diversity is needed for the study

of dynamic nature of vegetation under specific eco-environment situation.

REFERENCE

Forest survey of India (2011). State of Forest Report. MOEF, Dehradun.

Heywood, V.H. (1995). Global Biodiversity Assessment. United Nations Environment Program, Combridge University Press.

Jhariya, M. K. and Raj, A., (2014). Human welfare from biodiversity. Agrobios Newsletter. 12(9): 89-91.

Myers, N.; Mittermeier, R.A.; Mittermeier, C.G.; Fonseca, G.A.B. and Kent, K. (2000). Biodiversity hotspots for conservation priorities. Nature, 403: 853-858. doi:10.1038/35002501.

Panna, D.; Sundriyal, R.C. and Shanker, U. (2009). Tree diversity and population structure in a low land tropical rain forest in Eastern Himalayas, India, Ind. For., 135(11): 1526-44.

Seth, M.K. (2004). Trees and their economics importance- Botanical review, NYBG Press, New York.