

Floristic survey of sacred grove of Basmata village in Dumka district of Jharkhand

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ABSTRACT

The floristic survey and the study of biodiversity was conducted in sacred grove of Basmata village in Dumka district of Jharkhand. Sacred groves popularly known as Jaher or Jaherthan by Santals are the traditional communal sites of *in-situ* conservation. The indigenous people residing in this region are known as Santals, in local language they are known as 'Hor hopon'. A significant change has been noticed regarding its conservation in recent years. Field observation, secondary data and several interviews have been conducted with the prominent village people like Pradhan, the village head and Naeke, the village priest who carries out all religious rituals, and other elderly knowledgeable tribals to gather information. The phytosociological survey of Sacred groves, its association with Santals and the ecological importance have been discussed in this paper.

Key Words - Santals, Jaher, biodiversity, phytosociology, ecology

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INTRODUCTION

Sacred groves are group of trees considered sacred for a particular community. They are the forest patches communally protected by local people due to their religious association with them. Such grove must have at least five Sal (*Shorea robusta*) trees since Santals consider them as their deities namely Sin' bonga, Maran Buru, Jaher Era (Lady of the grove), Moreko – Turuiko and others (Marandi, *et al.*, 2023). Sin' bonga is the supreme deity. A significant change has been noticed regarding its conservation in recent years. Sacred groves are the natural gene pool preserver and example of habitat preservation through community participation (Gadgil and Vartak, 1975). The Santals have a culture of their own which they have preserved unchanged from time immemorial (Sinha & Singh, 2003). Worship of sacred groves is the traditional practice of various group of the society. It is mandatory to compile the ethnobotanical presently

existing among the diverse community before its values are completely vanished (Rao & R. Raghavendra, 1996). There are many studies entitled to further quantify these ethics which leads to biodiversity conservation and sustainable ecosystem (Pal and Mukhopadhyay, 2011). Sacred grove is rich heritage among the tribal communities which played significant role in religious and socio – cultural life among the local tribal people (Malhotra, *et al.*, 2001). In recent years traditional ethnobotanical studies have received much attention due to their wide local acceptability and clues for new or less known medicinal plants (Tripathi, 2000). Thus, there is now urgency for ethnobotanical research amongst aboriginal people (Maheshwari, 1983).

MATERIALS & METHODS

The study area, Dumka is located in the centre of Santal Pargana in the eastern part of Jharkhand. It

lies between 24° 30' 00" N latitude and 87° 30' 00" E longitude with an average elevation of 137 metres (449 feet). It covers a total area of 12,601 km².

The present study considers the ecological survey of vegetation inside the sacred grove of Basmata village of Dumka and the inter-relationship of indigenous people (Santals) with Sacred grove and its floral structure. Regular visits and surveys were made to collect plant specimens both in flowering and fruiting stages. Field observation on habit, habitat, medicinal and socio-cultural uses has been recorded in the field at the time of collection.

RESULT & DISCUSSION

The ecological study is carried out on the basis of -

Quantitative structure:

Quantitative structure of plant communities includes-

- 1. Abundance-** It is the number of individuals of any species per sampling unit of occurrence.

$$\text{Abundance} = \frac{\text{Total no. of individual of species}}{\text{No. of quadrat per unit in which they occur}}$$

- 2. Density-** It is the numerical strength of a species in the community. It gives an idea of degree of competition.

$$\text{Density} = \frac{\text{Total no. of individual of the species}}{\text{No of quadrat per units studied}}$$

- 3. Frequency-** It is the number of sampling units in which the particular species occurs.

$$\text{Frequency (\%)} = \frac{\text{No. of units in which species occurred}}{\text{Total no. of units studied}} \times 100$$

- 4. Frequency class - Raunkiaer's (1934)** grouped five frequency classes

Frequency	A= 1- 20 %	C=41 – 60%
	B= 21- 40%	D=61 -80% E=81 -100%

Table 1. Vegetation cover of Basmata SG

S.N.	Species name	Family	Local name	Hindi name	English name
1	<i>Shorea robusta</i>	Dipterocarpaceae	Sarjom	Sakhu, Sakhua	Sal
2	<i>Butea monosperma</i>	Fabaceae	Muruk'	Palash	Bastard teak, parrot tree
3	<i>Senna alata</i>	Fabaceae	Dari god	Ergaj	Candle bush
4	<i>Jatropha Gossypium</i>	Euphorbiaceae	Bhirda	Ratanjyoti	Bellyache bush
5	<i>Boerhavia diffusa</i>	Nyctaginaceae	Ohoi arak'	Punarnva	Hogweed
6	<i>Mitracarpus hirtus</i>	Rubiaceae	Chaatpatia	Vatke	Girdle pod
7	<i>Alternanthera sessilis</i>	Amaranthaceae	Garundi	Matsyaakshi	Dwarf copperleaf
8	<i>Cynodon dactylon</i>	Poaceae	Dhubi ghaas	Dhoob	Bermuda grass

Table 2. Quantitative analysis of vegetation structure of Basmata SG

S.N.	Name of Species	No. of individuals in each quad.										Total no. of individuals of each Sp. (X)	Total no. of quad. of occurrences (Y)	Total no. of quad. Studied (Z)	F%= (Y/Z * 100)	frequency class	Density (X/Z)	Abundance (X/Y)		
		1	2	3	4	5	6	7	8	9	10									
UPPER STOREY		1	2	3	4	5	6	7	8	9	10									
1	<i>Shorea robusta</i>	2		3			2		2	4		2	15	6	10	60	C	1.5	2.5	
MIDDLE STOREY																				
2	<i>Butea monosperma</i>			1				1					2	2	10	20	A	0.2	1	
SHRUB LAYER																				
3	<i>Senna alata</i>			5		3		4				3	2	17	5	10	50	C	1.7	3.4
4	<i>Jatropha gossypium</i>					2						3		5	2	10	20	A	0.5	2.5
GROUND LAYER																				
5	<i>Boerhavia diffusa</i>					2			3				3	8	3	10	30	B	0.8	2.7
6	<i>Mitracarpus hirtus</i>				2				2		2	2	2	8	4	10	40	B	0.8	2
7	<i>Alternanthera sessilis</i>				1				2					3	2	10	20	A	0.3	1.5
8	<i>Cynodon dactylon</i>			2		4		5	3	3	4		18	6	10	60	C	1.8	3	

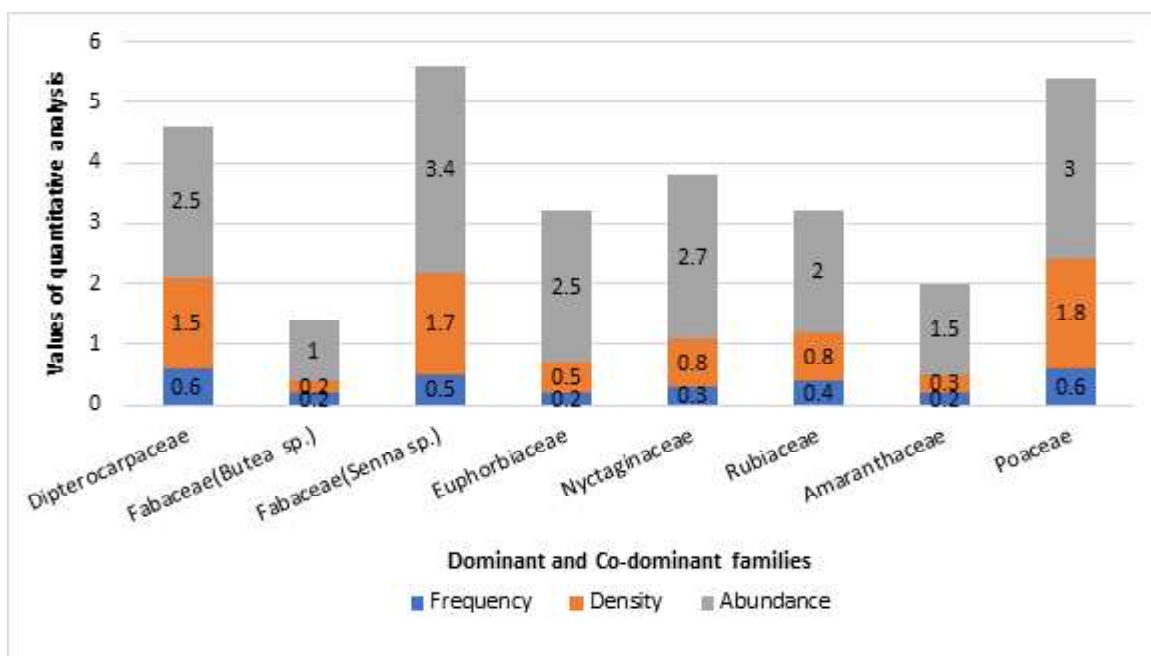


Fig.1. Representation of Dominant and Co-dominant families of Basmata SG

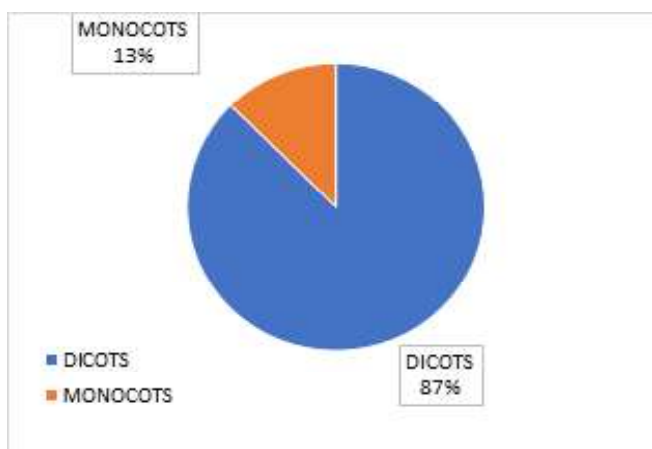


Fig.2. Representation of Dicots and Monocot families of Basmata SG

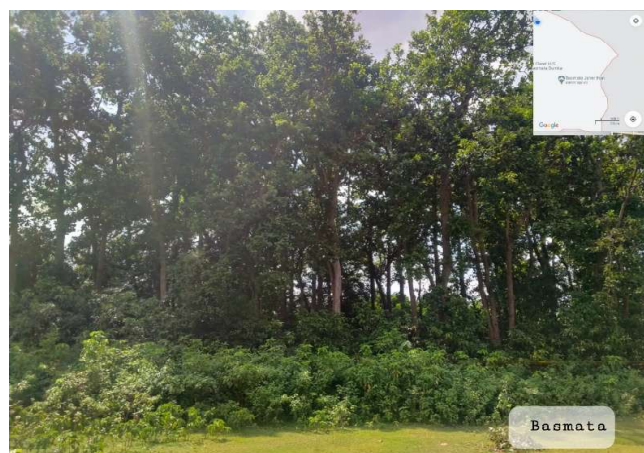


Fig. 3. Sacred grove of village Basmata

In the above tables, the dominant family is Fabaceae, and the co-dominant families are Poaceae, Dipterocarpaceae and so on.

Since the total number of families is 7, 1 belongs to monocot family and 6 belong to dicot family, we get Fig.2.

Significance of Sacred groves: The concept of Sacred groves (Jaher) has been a part of rich traditions and diverse culture for many generations. Sometimes, they are also known as natural museums of giant trees, treasure houses of threatened species, dispensaries of medicinal

plant, regulators of water sheds, recreation centers for urban life, veritable gardens for botanists, gene banks of economic species and recreation and spiritual retreat.

The ethnobotanical plants recorded in the Sacred groves of Santals primarily consisted of religious plants like *Shorea robusta* Gaertn. Tribals traditional belief system prohibits them to cut or pluck any plant parts before time, thus promoting successful flowering process. These giant trees harbour great genetic diversity like the ectomycorrhizal fungi species.

Medicinal and edible plant species are food not only for the indigenous people residing here but also for other organisms, thus sustaining a large number of species survival and helps in maintaining the food chain and ecological balance.

CONCLUSION

These Sacred groves (Jaher) are declining day by day. Some places where once these Sacred groves existed are now extinct. However, during this modernization and globalization, the recent past years has transformed and weakened religious, cultural and biological integrity. Changes in social belief, modernization and erosion of cultural practices are some of the major factors contributing towards degradation of the ancient heritage which need to be looked into for keeping up the ecological system and biodiversity conservation.

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