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Diversity and Ethno-Medicinal Importance of Tree Species in Two Ancient Sacred Groves of Purulia, West Bengal

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Key words: Sacred groves, Purulia, Micro climatic condition, Conservation

Purulia District is one of the major tribal districts in West Bengal. It is a part of Chotanagpur plateau situated at the south-western part of West Bengal at the adjacent lines of Bihar in the west and Jharkhand in the southwest. The present study areas are located at Manbazar-I Block of Purulia district which is very much forested and inhabited by large numbers of tribes. In Purulia district 19 different tribal communities of a low population group have been observed. These tribal peoples are mainly forest-villagers or inhabitants of small villages at the territory of forest [1-3]. Their socio-economic, cultural conditions are depending on only forest [4]. An interesting procedure of plant conservation strategy through sacred groves is noticed and analyzed ecologically, economically and taxonomically. These are treated as conservatory and main-made nursery [5]. Objectives of the present study include Studies on special measures adopted from the earlier period through sacred groves for sustainable management, and ethno medicinal importance of those plants found in these two sacred groves [6-8].

Ethnobotanical studies were made in two eco-based areas are Pakhbidra and Budhpur situated in Manbazar-I block of Purulia District, West Bengal. To authenticate the data, consultation with resource persons like- villagers, foresters, local medicine man, Janguru have been performed. Samples for some elements were collected from field as a sample specimen and cross-checked with literature available in museum, herbarium and journal sections of institutions and universities. Status of plants in sacred groves have been made using Shanon diversity index followed by Muller and Ellenburg. Conservation of local tribes has been followed using method they used in forest by Forest Protection Committee. Scientific measures were adopted following measures implemented by Forest Department as well as by Forest Protection Committee.

Field study of long-term interactions about ethnic people was made gathering preliminary information of ethno-medicinal plants/animals in different times i.e., monsoon, post monsoon, summer and in winter. Consultation with local medicine men among the people in these sites was done using leader person for easy visit in these sites. Regular consultation was done with tribal groups like Santhal, Lodha, Sabar, Munda, Mal-paharia etc. in the experimental area to confirm the use pattern of individual plant species. Medicinal properties of different ethno-medicinal plants and their parts were collected after critical examination and crosschecked from tribal people of various communities and also from literature available in institutional section. Study of the fate of these species after local collection was done through the thorough survey from nodal market and from the study of concerned herbal companies regarding the sale. Ecological parameters like frequency, density, and similarity Index were made following standard Ecology Hank Book.

Since the sacred grove is a segment of the larger landscape containing plants and other forms of geographical features that are protected by human societies, it is of great ecological significance. The foremost ecological function is the protection of biodiversity as well as to protect people of the territory as because the ritual goal is eco-cultural.

Budhpur Shiva Mandir

Area-100m², Altitude- Above 228 mt. MSL, Age-500yr (Approx)., Festivals- Chaitra Sankranti, Every Monday, Joldhala., People involved- Mahata (Kurmi), Bramhin, Santal, Dom (Kalindi)., Period of Deities- Whole year., Articles Dedicated- Goat, Chick, Rice (*Oriza sativa*), Bel Patta (*Aegle marmelos*), Coconut (*Cocos nucifera*).

Plants Associated- *Ficus religiosa*, *Ficus benghalensis*, *Streblus asper*, *Caesalpinia pulcherima*, *Strychnos nux-vomica*, *Terminalia bellirica*, *Alangium lamarkii*, *Tamarindus indica*, *Annona squamosa*.

Resource Person- Anukul Chatterjee, Age-60yr, Jagadish Mahapatra, Age-50yr. Both are Bramhin of this Mandir.

Here highest Importance Value Index (IVI) of tree species was found with *Ficus religiosa* i.e., 55.4 followed by

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Strychnos nux-vomica i.e., 43.45. The lowest IVI of tree species was found in case of *Alangium lamarkii* i.e., 11.65.

Pakbidra Bhairav Mandir

Area-120m², Altitude- Above 230 mt. MSL, Age-800yr (Approx)., Festivals- Chaitra Sankranti, Every Monday, Joldhala, Mela (Joistha Mash). People involved-Mahata (Kurmi), Bramhin, Santal, Dom (Kalindi)., Period of Deities-April-May-June, Whole year., Articles Dedicated- Goat, Chick, Rice (*Oriza sativa*), Bel Patta (*Aegle marmelos*), Coconut (*Cocos nucifera*).

Plants Associated- *Ficus benghalensis*, *Ficus religiosa*, *Diospyros melanoxylon*, *Ceiba pentandra*, *Haldinia cordifolia*, *Shorea robusta*.

Resource Person- Sukumar Ray, Age-70ry, the local bramhin.

Here highest Importance Value Index (IVI) of tree species was found with *Ficus benghalensis* i.e., 89.8 followed by *Ficus religiosa* i.e., 62.9. The lowest IVI of tree species was

found in case of *Haldinia cordifolia* i.e., 29.4.

Floristic surveys of these studied 2 sacred groves reveal a total of 13 species of angiosperms covering 12 genera belonging to 9 families. Among the 9 families of angiosperms, the two dominants in terms of species number are Moraceae (3 spp), and Caesalpiniaceae (2 spp).

These sacred groves are very close to forest and meaningfully associated with the inhabitants of the said area. By and large tribal people depend on forest though cultural and ritual behavior always associated with these groves. Not only the said reason another point is that these sites are virtually conserved for the production of seeds and propagules as nursery of nature for a long period of time. The present study was undertaken to evaluate the impact of man and forest ecosystem and also to the effect of different vegetation covers on different eco-climates. The diversity and use pattern of species composition by ethnic people of these two regions have been investigated to have an idea about the general ecological status of the vegetation.

Table 1 Inventory of species of ethnobotanical importance

Name	Family	Status	Uses
<i>Alangium salviifolium</i> (L.f) Wangerin	Cornaceae	Very Common	Fuel wood producing plant. Leaves used to treat rheumatic pain, haemorrhoid vomiting and eye disease. Fruits and seeds used to clear boils pain relief, blood disease and caught [9].
<i>Annona squamosa</i> L.	Annonaceae	Common	Fleshy edible fruits. Leaves and young fruits applied on boils. Roots in acute dysentery, depression and spinal disease. Specifically ripe fruits applied on malignant tumors.
<i>Caesalpinia pulcherima</i> L.	Caesalpiniaceae	Common	Root paste applied to ring worm, itch, scorpion sting and Pod with seeds applied for piles, pain asthma.
<i>Ceiba pentandra</i> (L.) Gaertn.	Bombacaceae	Common	Soft timber producing plant. Roots to treat excessive loss of sperm, skin disease, leprosy, and gonorrhoea.
<i>Diospyros melanoxylon</i> (Gaertn.) Gurke	Ebenaceae	Seldom	Leaves used to make "Bidi". Bark used as astringent tonic, used in diarrhea and dyspepsia.
<i>Ficus benghalensis</i> L.	Moraceae	Common	Cultivated as ornamental plant or as avenue tree. Leave and bark latex used to cure ulcers, carbuncle and skin diseases
<i>Ficus religiosa</i> L.	Moraceae	Common	Cultivated as ornamental plant or as avenue tree. Leave and bark latex used to cure ulcers, carbuncle and skin diseases
<i>Haldinia cordifolia</i> Roxb.	Rubiaceae	Common	Sacred tree of Santal and Mahata tribes. Stem, bark used as antiseptic agents, heal wounds, dysentery, piles, urogenital disorders and skin disease [10].
<i>Shorea robusta</i> L.	Dipterocarpaceae	Common	Trunk of tree uses as commercial purposes for furniture, railway sleeper etc. Leaf, flower, bark resin has commercial values.
<i>Streblus asper</i> Lour.	Moraceae	Common	Fuel wood producing plant. Leaves used as galactagogue, swelling and buboes. Bark juice used as antiseptic, astringent and sedative purposes.
<i>Strychnos nux-vomica</i> Linn.	Loganiaceae	Threatened	Seeds use for homeopathic and allopathic medicine. Leaf paste applied to ulcers, relief pain wounds, dysentery, dyspepsia and fever [11].
<i>Tamarindus indica</i> Linn.	Caesalpiniaceae	Common	Raw fruits are used as souring material. A good quality tannin and dye are obtained from bark, leaves, fruits and seeds.
<i>Terminalia bellirica</i> (Gaertn.) Roxb. and Flemming	Combrataceae	Rare	The fruit is known under the name of myrobalans and is employed for dyeing and tanning. It is largely employed for dyeing, as a mordant, as a tan and also medicinally [12].

SUMMARY

Sacred groves are small patch of area near tribal village or forest where some religious duties are devoted and may be regarded as holy place whose spiritual values are infinite that may be a place of heart to conclude nature's made eco-territory under micro climatic condition. This is a conservation strategy made by tribal people from ancient age. The two very old aged

sacred grooves in Purulia District of West Bengal are noticed and analyzed ecologically, economically and taxonomically. These are treated as conservatory and man-made nursery. The present study is initiated in two ancient (approx 800-year-old) sacred groves of Purulia district of West Bengal at Budhpur and Pakhbidra for sustainable management of some rare plants and ethno medicinal importance of those plants found in those sacred groves.

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