



Sacred flora and indigenous belief systems of tribal communities in Mayurbhanj, Odisha

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Abstract

Mayurbhanj district in north Odisha has been identified in the world as a land of very high rate of biological diversity and cultural significance because of the long term interactions of the tribal people of the area with the local forest cover. Examples To illustrate, tribal groups (such as the Santal, Ho, Munda, Bathudi and many others) have traditionally had high cultural association with plants, whether in terms of their sacral beliefs, rituals and imparting ethnomedicinal knowledge through the generations. This paper has reported 83 species of sacred plants that have been preserved and utilized by the tribal people of Mayurbhanj with their cultural significance and application in religious rituals and in medicine. The ethnobotanical information was gathered by the means of structured field survey studies and field tours to the chosen tribal villages and sacred groves and complemented with a comprehensive review of the available literature on the subject matter of the traditional knowledge of the tribes. The findings indicated that sacred plants are important in the conservation of biodiversity, health practices and preservation of cultural identity of the tribal people. In addition, it is revealed that sacred groves and belief based conservation methods provide sustainable community based policies of conservation of ecologically and culturally significant plant species in the field. The paper has therefore shown that there is need to conserve and document native bodies of knowledge and traditional conservation plans so that both the biological and cultural resources within the area are under sustainable management.

Keywords: Sacred plants, Tribal Beliefs, Tribal Culture, Indigenous Knowledge Systems, Mayurbhanj, Odisha

Introduction

1. Introduction

The central place in traditional ecological knowledge systems of India is occupied by sacred plants. In tribal communities, flora cannot be regarded only as biological commodity, but a connection between plants and spiritual cosmologies, ancestral traditions, and moral principles that direct sustainable human-nature relations. Such belief systems serve as informal conservation systems in that they co-ordinate cultural values to biodiversity conservation (Jain, 1991)^[1].

The impressive biological and cultural diversity in India has been fabricated by the influence of the indigenous and tribal population that depend on the forests to supply their healthcare needs, food, religious practices, and material necessities. Sacred plants are considered to be culturally important species that represent divine powers or ancestral powers and their use is controlled by taboos and traditional laws. These practices have made it easy to conserve the native plant diversity in the long term in different ecological regions (Vartak, 1976).

Odisha state is home to 62 different tribal groups out of which Mayurbhanj district is one of the most prominent tribal groups in the state. The area is also ecologically prosperous with a large forest area and the Similipal biosphere reserve. Cultural affinities Community groups like the Santal, Ho, Munda and Bathudi have close cultural ties to the forest situation, and cultural traditions protect the species *Shorea robusta*, *Ficus religiosa*, and *Madhuca longifolia* due to their medicinal properties. Medical taxa such as *Rauwolfia serpentina* and *Pterocarpus marsupium* are also preserved by cultural norms as objects of their therapeutic value.

Another unique feature of Mayurbhanj is the maintenance of sacred groves- these are the small areas of forests covered

under the protection of religious beliefs and taboo of rituals. These groves are both in situ conservation areas of the rare and medicinal species and socio-cultural institutions that control the use of resources (Mohanta *et al.*, 2012)^[3]. However, these systems are now at risk of destruction by processes of modernization, deforestation and erosion of traditional knowledge transmission to new generations.

The present paper providing a systematic description of 83 sacred vegetation species maintained by the tribal communities of Mayurbhanj thus including both cultural and ritualistic and medicinal views. The report focuses on sacred plants in a biocultural conservation system and highlights the importance of the same in the context of community based culturally sensitive biodiversity conservation efforts.

Study Area

Mayurbhanj district, which is located in the northern part of Odisha, India (21°16'-22°34' N; 85°40'-87°11' E), is characterized by a large amount of forest, rolling topography, and lateritic soils. It is mainly tropical moist deciduous forest that is dominated by *Shorea robusta* (Sal) as the most common species. A large part of the district falls under the Similipal Biosphere Reserve which is ranked as one of the most important biodiversity rich region of the country.

The district has a tropical climate with the following summer, monsoon, and winter seasons which are favourable to the abundance of vegetation. It has several tribal groups, such as Santal, Ho, Munda, Bathudi, Bhumij, and Kolha, which are extremely dependent on the forest resources in subsistence and cultural activities. Protection of sacred groves, ancestral trees and sites of village deities are often by religious beliefs and customary laws, thus acting as conservation areas in the hands of the community.

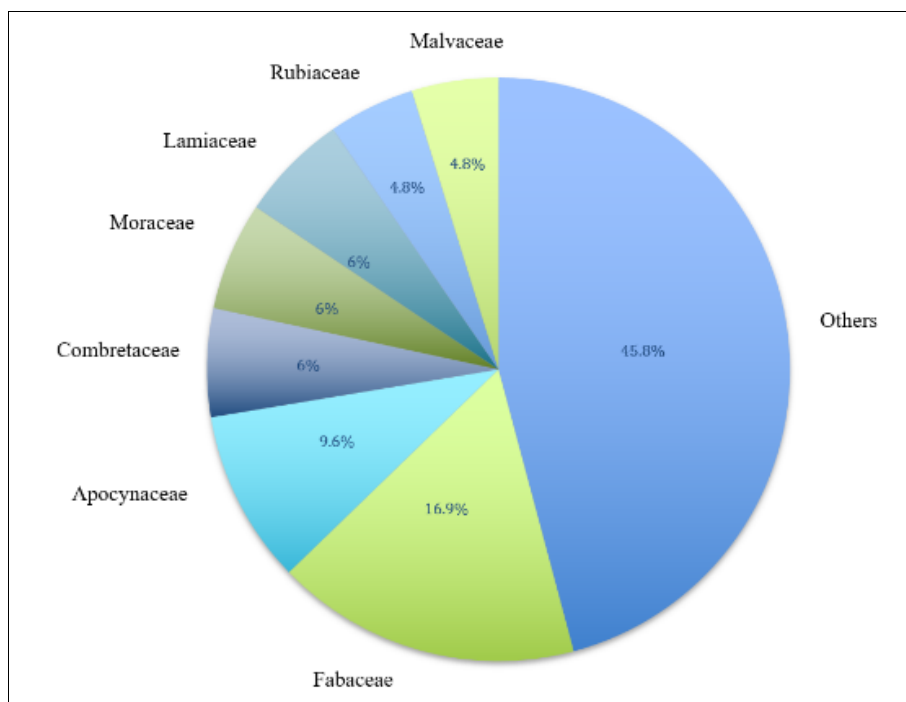


Fig 1: Family-wise distribution of sacred plant species in Mayurbhanj district, Odisha

Table 1: Presents the complete list of the 83 sacred plant species documented in the study, along with their botanical families, associated tribal communities, and cultural, ritual, or medicinal significance.

Sl.	Botanical name	Family	Community	Cultural / ritual / medicinal use	Reference(s)
1	<i>Shorea robusta</i> Gaertn. f.	Dipterocarpaceae	Santal, Ho, Munda	Sacred tree; leaves used in worship, festivals, and ancestor rituals; wood cutting taboo in sacred groves	Kisku & Barik, 2015; Mohanta <i>et al.</i> , 2012 [2, 3]
2	<i>Pterocarpus marsupium</i> Roxb.	Fabaceae	Santal, Bathudi	Bark decoction for diabetes; tree conserved in sacred groves	Rout & Panda, 2010 [5]
3	<i>Terminalia tomentosa</i> (syn. <i>T. alata</i>)	Combretaceae	Ho, Munda	Worshipped seasonally; bark and leaves for wound healing	Panda <i>et al.</i> , 2011 [4]
4	<i>Cassia fistula</i> L.	Fabaceae	Santal	Flowers offered during rituals; pulp used as laxative	Panda <i>et al.</i> , 2011 [4]
5	<i>Mangifera indica</i> L.	Anacardiaceae	All tribes	Leaves used in puja and marriage ceremonies; fruits eaten	
6	<i>Madhuca longifolia</i> var. <i>latifolia</i>	Sapotaceae	Santal, Ho	Flowers offered to deities; fermented liquor in festivals	Kisku & Barik, 2015 [2]
7	<i>Ficus benghalensis</i> L.	Moraceae	All tribes	Sacred ancestral tree; cutting prohibited	Mohanta <i>et al.</i> , 2012 [3]
8	<i>Ficus religiosa</i> L.	Moraceae	All tribes	Village deity worship; believed to house spirits	
9	<i>Annona reticulata</i> L.	Annonaceae	Santal	Fruits consumed; leaves used in folk medicine	Panda <i>et al.</i> , 2011 [4]
10	<i>Bombax ceiba</i> L.	Malvaceae	Ho, Bathudi	Worshipped; gum used in traditional medicine	Rout & Panda, 2010 [5]
11	<i>Azadirachta indica</i> A. Juss.	Meliaceae	All tribes	Purification rituals; skin and fever medicine	
12	<i>Schleichera oleosa</i> (Lour.) Oken	Sapindaceae	Santal	Oil from seeds; tree preserved near sacred sites	Rout & Panda, 2010 [5]
13	<i>Saraca asoca</i> (Roxb.) de Wilde	Fabaceae	Santal	Fertility rituals; bark for gynecological disorders	Panda <i>et al.</i> , 2011 [4]
14	<i>Hemidesmus indicus</i> (L.) R.Br.	Apocynaceae	Ho	Root tonic and blood purifier; restricted harvest	Panda <i>et al.</i> , 2011 [4]
15	<i>Operculina turpethum</i> (L.) Silva Manso	Convolvulaceae	Munda	Sacred purgative root used ritually	Rout & Panda, 2010 [5]
16	<i>Aristolochia indica</i> L.	Aristolochiaceae	Santal	Snakebite remedy; conserved in groves	Rout & Panda, 2010 [5]
17	<i>Boswellia serrata</i> Roxb. ex Colebr.	Burseraceae	Ho	Resin used in rituals and joint-pain treatment	Panda <i>et al.</i> , 2011 [4]
18	<i>Celastrus paniculatus</i> Willd.	Celastraceae	Santal	Seeds for memory-enhancing oil	Rout & Panda, 2010 [5]
19	<i>Garcinia xanthochymus</i> Hook. f.	Clusiaceae	Munda	Fruit eaten; bark used medicinally	Panda <i>et al.</i> , 2011 [4]
20	<i>Gloriosa superba</i> L.	Liliaceae	Santal	Sacred medicinal herb; harvesting restricted	Kisku & Barik, 2015 [2]
21	<i>Oroxylum indicum</i> (L.) Kurz	Bignoniaceae	Ho	Digestive medicine; sacred tree	Panda <i>et al.</i> , 2011 [4]

22	<i>Paederia foetida</i> L.	Rubiaceae	Bathudi	Leaf paste for stomach disorders	Panda <i>et al.</i> , 2011 ^[4]
23	<i>Rauvolfia serpentina</i> (L.) Benth. ex Kurz	Apocynaceae	Santal	Root for snakebite & hypertension	Rout & Panda, 2010 ^[5]
24	<i>Rubia cordifolia</i> L.	Rubiaceae	Munda	Blood purifier; skin disease remedy	Panda <i>et al.</i> , 2011 ^[4]
25	<i>Aegle marmelos</i> (L.) Corrêa	Rutaceae	Santal, Ho	Leaves for worship; fruit for digestion	
26	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	All tribes	Sacred household plant; purification rituals	
27	<i>Butea monosperma</i> (Lam.) Taub.	Fabaceae	Santal	Festival flowers; sacred tree	Mohanta <i>et al.</i> , 2012 ^[3]
28	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Santal	Diabetes medicine; culturally protected	Panda <i>et al.</i> , 2011 ^[4]
29	<i>Terminalia chebula</i> Retz.	Combretaceae	Santal, Ho	Digestive medicine; ritual importance	Rout & Panda, 2010 ^[5]
30	<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Combretaceae	Munda	Sacred medicinal fruit	Panda <i>et al.</i> , 2011 ^[4]
31	<i>Phyllanthus emblica</i> L.	Phyllanthaceae	Ho	Ritual fruit; tonic	
32	<i>Tinospora cordifolia</i> (Willd.) Hook.f.	Menispermaceae	Santal	Sacred climber; immunity booster	Panda <i>et al.</i> , 2011 ^[4]
33	<i>Curcuma longa</i> L.	Zingiberaceae	All tribes	Marriage, purification & healing rituals	
34	<i>Calotropis gigantea</i> (L.) Dryand.	Apocynaceae	Ho	Ritual offerings; latex medicine	Mohanta <i>et al.</i> , 2012 ^[3]
35	<i>Withania somnifera</i> (L.) Dunal	Solanaceae	Ho	Stress-relief tonic	Rout & Panda, 2010 ^[5]
36	<i>Cissus quadrangularis</i> L.	Vitaceae	Munda	Bone-fracture healing	Rout & Panda, 2010 ^[5]
37	<i>Stereospermum chelonoides</i> DC.	Bignoniaceae	Santal	Bark used in traditional medicine	Panda <i>et al.</i> , 2011 ^[4]
38	<i>Dioscorea bulbifera</i> L.	Dioscoreaceae	Ho	Sacred tuber; famine food	Panda <i>et al.</i> , 2011 ^[4]
39	<i>Ficus racemosa</i> L.	Moraceae	All tribes	Sacred fig; digestive medicine	Mohanta <i>et al.</i> , 2012 ^[3]
40	<i>Ziziphus mauritiana</i> Lam.	Rhamnaceae	Santal	Ritual fruit; nutrition	Rout & Panda, 2010 ^[5]
41	<i>Nyctanthes arbor-tristis</i> L.	Oleaceae	Santal	Flower worship; fever medicine	Panda <i>et al.</i> , 2011 ^[4]
42	<i>Bambusa arundinacea</i> Willd.	Poaceae	All tribes	Ritual structures; tools	
43	<i>Alstonia scholaris</i> (L.) R.Br.	Apocynaceae	Ho	Sacred tree; bark medicine	Panda <i>et al.</i> , 2011 ^[4]
44	<i>Artocarpus heterophyllus</i> Lam.	Moraceae	Santal	Ritual fruit; nutrition	Rout & Panda, 2010 ^[5]
45	<i>Moringa oleifera</i> Lam.	Moringaceae	All tribes	Sacred food & medicine	Panda <i>et al.</i> , 2011 ^[4]
46	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	All tribes	Ritual grass in worship	
47	<i>Desmodium gangeticum</i> (L.) DC.	Fabaceae	Santal	Sacred medicinal root	Panda <i>et al.</i> , 2011 ^[4]
48	<i>Achyranthes aspera</i> L.	Amaranthaceae	Ho	Ritual & medicinal herb	Panda <i>et al.</i> , 2011 ^[4]
49	<i>Justicia adhatoda</i> L.	Acanthaceae	Munda	Cough medicine	Rout & Panda, 2010 ^[5]
50	<i>Argyrea nervosa</i> (Burm.f.) Bojer	Convolvulaceae	Santal	Ritual climber; tonic	Panda <i>et al.</i> , 2011 ^[4]
51	<i>Cleistanthus collinus</i> Benth.	Phyllanthaceae	Ho	Sacred but poisonous; ritual taboo	Mohanta <i>et al.</i> , 2012 ^[3]
52	<i>Holarrhena pubescens</i> Wall. ex G. Don	Apocynaceae	Ho	Anti-diarrheal medicine	Panda <i>et al.</i> , 2011 ^[4]
53	<i>Vitex negundo</i> L.	Lamiaceae	Santal	Ritual purification; pain relief	Rout & Panda, 2010 ^[5]
54	<i>Pongamia pinnata</i> (L.) Pierre	Fabaceae	All tribes	Sacred oilseed tree	Mohanta <i>et al.</i> , 2012 ^[3]
55	<i>Abrus precatorius</i> L.	Fabaceae	Santal	Ritual seeds; medicinal	Panda <i>et al.</i> , 2011 ^[4]
56	<i>Flemingia macrophylla</i> (Willd.) Merr.	Fabaceae	Ho	Sacred shrub; medicinal	Panda <i>et al.</i> , 2011 ^[4]
57	<i>Costus speciosus</i> (J. Koenig) Sm.	Costaceae	Munda	Ritual rhizome medicine	Panda <i>et al.</i> , 2011 ^[4]
58	<i>Asparagus racemosus</i> Willd.	Asparagaceae	Santal	Fertility medicine	Rout & Panda, 2010 ^[5]
59	<i>Cassia tora</i> L.	Fabaceae	Ho	Skin disease medicine	Panda <i>et al.</i> , 2011 ^[4]
60	<i>Clerodendrum serratum</i> (L.) Moon	Lamiaceae	Santal	Sacred medicinal shrub	Panda <i>et al.</i> , 2011 ^[4]
61	<i>Ipomoea aquatica</i> Forssk.	Convolvulaceae	Munda	Sacred food & medicine	Rout & Panda, 2010 ^[5]
62	<i>Momordica charantia</i> L.	Cucurbitaceae	All tribes	Diabetes medicine	Panda <i>et al.</i> , 2011 ^[4]
63	<i>Lawsonia inermis</i> L.	Lythraceae	Santal	Ritual dye & medicine	Mohanta <i>et al.</i> , 2012 ^[3]
64	<i>Erythrina variegata</i> L.	Fabaceae	Ho	Sacred shade tree	Mohanta <i>et al.</i> , 2012 ^[3]
65	<i>Dalbergia latifolia</i> Roxb.	Fabaceae	Ho	Sacred timber; cutting taboo	Kisku & Barik, 2015 ^[2]
66	<i>Neolamarckia cadamba</i> (Roxb.) Bosser	Rubiaceae	Santal	Sacred village tree	Mohanta <i>et al.</i> , 2012 ^[3]
67	<i>Helicteres isora</i> L.	Malvaceae	Munda	Sacred fruit medicine	Panda <i>et al.</i> , 2011 ^[4]
68	<i>Sida cordifolia</i> L.	Malvaceae	Ho	Ritual medicinal herb	Panda <i>et al.</i> , 2011 ^[4]
69	<i>Coccinia grandis</i> (L.) Voigt	Cucurbitaceae	Santal	Ritual food plant	Rout & Panda, 2010 ^[5]
70	<i>Tridax procumbens</i> L.	Asteraceae	Ho	Sacred wound healer	Panda <i>et al.</i> , 2011 ^[4]
71	<i>Solanum nigrum</i> L.	Solanaceae	Munda	Sacred vegetable & medicine	Panda <i>et al.</i> , 2011 ^[4]
72	<i>Leucas aspera</i> (Willd.) Link	Lamiaceae	Ho	Ritual & medicinal herb	Rout & Panda, 2010 ^[5]
73	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	All tribes	Sacred rejuvenating herb	Panda <i>et al.</i> , 2011 ^[4]
74	<i>Aloe vera</i> (L.) Burm.f.	Asphodelaceae	All tribes	Ritual purification & medicine	

75	<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	Santal	Flower offerings in worship	
76	<i>Bacopa monnieri</i> (L.) Wettst.	Plantaginaceae	Munda	Memory-enhancing sacred herb	Panda <i>et al.</i> , 2011 ^[4]
77	<i>Centella asiatica</i> (L.) Urb.	Apiaceae	Ho	Brain tonic; sacred use	Rout & Panda, 2010 ^[5]
78	<i>Acorus calamus</i> L.	Acoraceae	Santal	Ritual rhizome medicine	Panda <i>et al.</i> , 2011 ^[4]
79	<i>Fagonia cretica</i> L.	Zygophyllaceae	Ho	Sacred healing herb	Panda <i>et al.</i> , 2011 ^[4]
80	<i>Pergularia daemia</i> (Forssk.) Chiov.	Apocynaceae	Santal	Ritual climber; medicinal latex	Rout & Panda, 2010 ^[5]
81	<i>Kigelia africana</i> (Lam.) Benth.	Bignoniaceae	Ho, Munda	Sacred tree near villages; fruits and bark used in traditional medicine for skin ailments; cutting restricted	Panda <i>et al.</i> , 2011; Mohanta <i>et al.</i> , 2012 ^[3, 4]
82	<i>Pueraria tuberosa</i> (Willd.) DC.	Fabaceae	Santal	Tuber used in vitality-enhancing tonics and fertility-related beliefs; plant conserved in forest patches	Rout & Panda, 2010; Panda <i>et al.</i> , 2011 ^[4, 5]
83	<i>Terminalia arjuna</i> (Roxb.) Wight & Arn.	Combretaceae	Ho, Santal	Tree worshipped near water bodies; bark used for cardiac ailments; culturally protected	Rout & Panda, 2010; Mohanta <i>et al.</i> , 2012 ^[3, 5]

(Table-1: Sacred Plants of Mayurbhanj District, Odisha: Community Use, Cultural Beliefs and Medicinal Significance)

2. Cultural convictions and Ritual meaning

Mauryabhanj has sacred plants that are heavily intertwined with both indigenous belief and ritual practices. An array of species is thought to be the dwelling of village gods or spirits of ancestors hence attaching great ritual value. The such species of trees as *Shorea robusta*, *Ficus benghalensis*, *Ficus religiosa*, *Neolamarckia cadamba*, and *Madhuca longifolia* are the center of the village religion, the seasonal rituals, and the community rituals.

These sacred plants are highly vulnerable to religious taboos against cutting or destructing these plants and their protection is guaranteed over many years. The sacred groves connected with the location of village divinities and ancestral veneration practices serve as socio ecological structures, which control the exploitation of forest resources and strengthen community conservation morals. The household worship and life-cycle rituals are dominated by herbaceous species such as, but are not limited to, the following: *Ocimum tenuiflorum*, *Cynodon dactylon*, *Curcuma longa*, *Acorus calamus*, *Pergularia daemia*, and selective harvesting of climbers and shrubs such as *Tinospora cordifolia*).

3. Medicinal Implications of Importance and Conservation

A significant portion of the recorded indigenous plant species of sacred importance has the known medicinal use and is a component of indigenous health care systems. Different parts of plants are used in the treatment of diabetes, fever, bowel problems, skin diseases, snakebite, bone fracture, and reproductive health problems. Such species as *Rauvolfia serpentina*, *Tinospora cordifolia*, *Saraca asoca*, *Gloriosa superba*, *Pterocarpus marsupium* and *Oroxylum indicum* are also culturally preserved owing to their medicinal significance.

The religious nature of these medicinal plants inhibits excess harvesting and encourages sustainable harvesting of the plants. The results indicate that belief-based protection is an efficient informal conservation methodology, which is helpful in conservation of biodiversity and in conventional health care machinery. Nevertheless, the continuous socio-economic shifts and loss of orthodox belief systems are severe challenges that need to be incorporated and

implemented by including native conservation ethics in the modern biodiversity management systems.

4. Synthesis

Mayurbhanj sacred plants is a biocultural conservation system where ecological sustainability is attained by cultural values and religious beliefs. Recording of 83 species of sacred plants points to the timelessness of the indigenous knowledge systems in the conservation of biodiversity, and it also denotes how they might be applicable in the management of natural resources even in the sustainable way.

Use of Sacred Plants in Biodiversity conservation

Sacred groves and plants are also traditional conservation units that are governed through cultural regulations instead of legislations. These systems make sure that the species such as the keystones, the medicinal species are safeguarded, the genetic diversity is retained and the stability of the ecosystems is maintained. The conservation model of Mayurbhanj which is based on beliefs explains why culture and ecology cannot be separated in the tribal scenery.

Threats and Implications of Conservation

The ways of life and cultural degradation of sacred plants and traditions are an issue due to rapid industrialization, mining, deforestation, and cultural transformation. This heritage is also threatened as more and more people refuse to pass the traditional knowledge to the younger generations. There is an urgent need to document, legally recognize sacred groves and to incorporate the tribal knowledge in conservation policies.

Conclusion

This paper documents 83 holy plant species held by the tribal people of Mayurbhanj district, Odisha and emphasises the high interdependence of indigenous belief systems, traditional knowledge and biodiversity conservation. Local systems sacred plants and groves are locally managed conservation systems, spiritual values and customary restrictions are highly important in the conservation of species with ecological and cultural significance.

The sacred flora is dominated by tree species, as they are marked by their symbolic meaning, ecological and ritual significance, but herbs, shrubs and climbers play an important role in the domestic rituals and in traditional medicine. The medicinal values of a significant percentage

of sacred plants make them cultural sanctuaries, which control the harvesting activities, and therefore, sustainability is achieved in the products, as well as the availability of the products.

The accelerated socio-economic developments as well as the slow decline in traditional systems of belief continue to present an increasing challenge on the sustainability of these conservation practices. The paper thus highlights the need to record the indigenous knowledge, support the existing traditional ethics of conservation, and integrate the management organization based on belief in the modern conservation program of biodiversity. The Mayurbhanj sacred plants in general are eloquent illustrating a biocultural conservation model that can be useful in resource management and conservation programs through community-based programs.

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