

## **CONSERVATION OF ETHNO-MEDICINAL PLANTS THROUGH SACRED GROVES OF BANKURA DISTRICT, WEST BENGAL**

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**ABSTRACT** ■ Sacred groves are distinct patches of vegetation which are consecrated in the name of local deities. Bankura is one of the south-western districts of West Bengal, having many sacred groves, which harbour a certain amount of medicinal plants. The present paper highlights on the ethno-medicinal plant diversity and their traditional uses of five (5) sacred groves situated in five (5) blocks of Bankura district, West Bengal. This study records the presence of all total of 40 species of plants under 38 genera belonging to 26 different families. Out of the 40 plant species, 7 plants are traditionally used to cure various skin diseases, 6 plants are used in gastrointestinal problems and 5 species are used to cure various respiratory diseases. Moreover, one plant is used to cure food poisoning in cows and seeds of another one is used as poison to kill the rats. The modern-day threats to the ethno-medicinal plants and also to the sacred groves are discussed. In search of remedies, the authors strongly recommend a strict Government conservation policy on the sacred groves to help protect, preserve and maintenances of the ethno-medicinal plants as well as the traditional ecological knowledge (TEK).

**Key words:** Sacred groves, Ethno-medicinal plants, Bankura district, Conservation.

### **INTRODUCTION**

Conservation of plants and other natural components has been an integral part of indigenous communities all over the world. In India, many societies have traditionally developed strategies for the managing and conserving of nature and natural resources. One such significant tradition of nature conservation is that of dedicating patches of forests or groves to some deities and spirits by the local people belonging to both tribal and non-tribal communities (Bhakat, 2003;

Bhakat, 2009; Bhakat, 2017; Bhakat and Pandit, 2003; Bhakat and Sen, 2008). Such traditionally conserved forest pockets, maintained by indigenous people are called sacred groves.

Sacred groves (SGs) are found all over the world and they are considered as old as the pre-agrarian stage of Human civilization. In India, sacred groves are believed to be Pre-Vedic in origin (Gadgil and Vartak, 1975). Though, the sacred groves are mostly found in Andhra Pradesh, Himachal Pradesh,

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Karnataka, Kerala, Maharashtra and Meghalaya (Malhotra *et al.*, 2000), in West Bengal there are the presence of significant amount of Sacred groves situated mainly in Bankura, Birbhum, Purulia, West Midnapore and Jhargram districts (Bhakat, 2003; Bhakat, 2009). As mentioned earlier, sacred groves are maintained generally by the local ethnic groups and each of them differs from other due to their occurrence in different locations and vegetation.

Bankura district is the adobe of both the tribal and non-tribal communities. The protected forest fringes (sacred groves) are named on the basis of types of residing deities reside in that grove. As for example, *Paharsini*, *Banstolasini*, *Maa Chandir Than*, *Jaher than* etc. are the common names of the Sacred groves of Bankura district. The biodiversity and the ethno-botany of some sacred groves of Bankura district, West Bengal has been studied by Basu (2009) and Nayak (2017) but still there are many more such groves to be studied.

Ethno-medicinal plants of these sacred groves have been used to cure human health from ancient times. After enormous trial and error methods applied, the human race has accumulated a sound knowledge about the medicinal properties of various plants throughout the course of evolution. Many of these medicinal plants are in great threat of extinction due to anthropogenic pressure. But the Sacred groves act as the safe house for these medicinal plants along with others as these are protected by social taboo. Thus the protection and preservation of biodiversity are maintained as *in-situ* conservation (Bhakat and Pandit, 2003; Bhakat and Sen, 2008; Dhiman, 2003). With this background, this paper is focused on the diversity and uses of the ethno-medicinal plants found in five (5) sacred groves of Bankura district, West Bengal.

## STUDY AREA

Bankura district is a part of ancient Rarh. It is situated between 22° 38' and 23° 38' North latitude and between 86° 36' and 87° 46' East longitude. It has an area of 6,882 square kilometres. On the North and North-East the district is bounded by Paschim and Purba - Bardhaman districts, from which it is separated mostly by the Damodar River. On the South-East it is bounded by Hooghly district, on the South by PaschimMedinipur and Jhargram districts and on the West by Purulia district. Bankura district has been described as the "connecting link between the plains of Bengal on the East and Chota Nagpur plateau on the West".

As per Census, 2011 (Anonymous) the population of Bankura district is 3,596,674. Out of which, 92.63% peoples of the district are from rural areas. A large number of forest fringe people, both tribal (like Kora, Lodha, Munda, Santal, etc.) and non-tribal, not only depend on natural resources for their livelihood but also protect a large number of plants through sacred groves (Basu, 2009).

The studied five (5) sacred groves are situated in five different blocks (Onda, Chhatna, Hirbandh, Barjora and Simlapal) of Bankura district (Figure-1& Table-1).

## MATERIALS AND METHODS

The study was carried out through surveys, from July 2016 to June, 2017. During this time five sacred groves (1 to 5) (Figures- 2, 3, 4) and their adjoining villages of Bankura district were surveyed entirely. The proper location of the sacred groves were taken with the help of GPS and their approximate areas were recorded.

For enlisting the plant diversity, details of the plants were recorded on the spot and samples and photographs were taken. All the plants are identified with the help of Bengal Plants



Fig. 1: Block map of Bankura district, W.B.

NO.	NAME OF THE SACRED GROVES	COORDINATES OF LOCATION	P.S./ BLOCK	DIETIES (TYPE)	APP. AREA (sq. metre)	OWNERSHIP	DOMINANT MEDICINAL PLANTS
1	Khamarberia Maa Chandir Than (Fig. 2)	23°7'34.98"N 87°13'59.69"E	Onda	Maa Chandir (Non-iconic)	1400	Private	<i>Azadirachta indica</i> <i>Hygrophila auriculata</i>
2	Hausibaid Paharsini (Fig. 3)	23°21'29.89"N 86°57'44.06"E	Chhatna	Paharsini (Non-iconic)	800	Forest dept.	<i>Madhuca longifolia</i> <i>Achyranthes aspera</i>
3	Dolderia-Namapara Banshtolasini	22°56'56.78"N 87°00'29.77"E	Simlapal	Bashtolasini (Non-iconic)	600	Public	<i>Alangium alvifolium</i> <i>Strychnos nux-vomica</i>
4	Dhabani Sanyasi Than (Fig. 4)	23°18'12.09"N 87°11'25.89"E	Barjora	Baba Sanyasi (non-iconic)	1200	Private	<i>Syzygium cumini</i> <i>Cryptolepis sinensis</i>
5	Asberia Jaher Than	23°03'26.44"N 86°53'59.73"E	Hirbandh	Jaher (non-iconic)	600	Forest dept.	<i>Madhuca longifolia</i> <i>Alstonia scholaris</i>

(Prain, 1903), Flora of Bankura District, West Bengal (Sanyal, 1994) and also with the help of works of Paria (2005) on Medicinal Plant Recourses in South West Bengal.

For the ethno-medicinal data, oral interviews were taken mainly of the villagers of age group 40-70 (years). The details of the medicinal plants, like local names, part(s)

used, in which disease(s), mode of administration(s), etc. were recorded.

## RESULTS AND DISCUSSION

A total number of forty (40) ethno-medicinal plants (Table-2), their local names, part(s) used and purpose of uses were recorded from the five sacred groves. The nearby villages were



Fig. 2: Khamarberia Maa Chandir Than (background) (SG-1), foreground- Vaskar Malla (70) - information provider.



Fig. 3: Housibaid Paharsini, SG-2



Fig. 4: Dhabani Sanyasi Than, SG-4

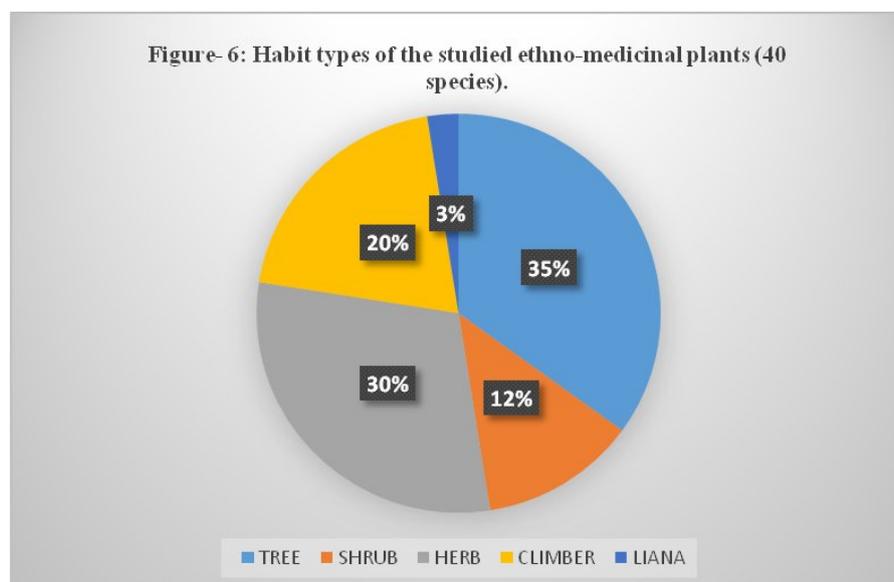
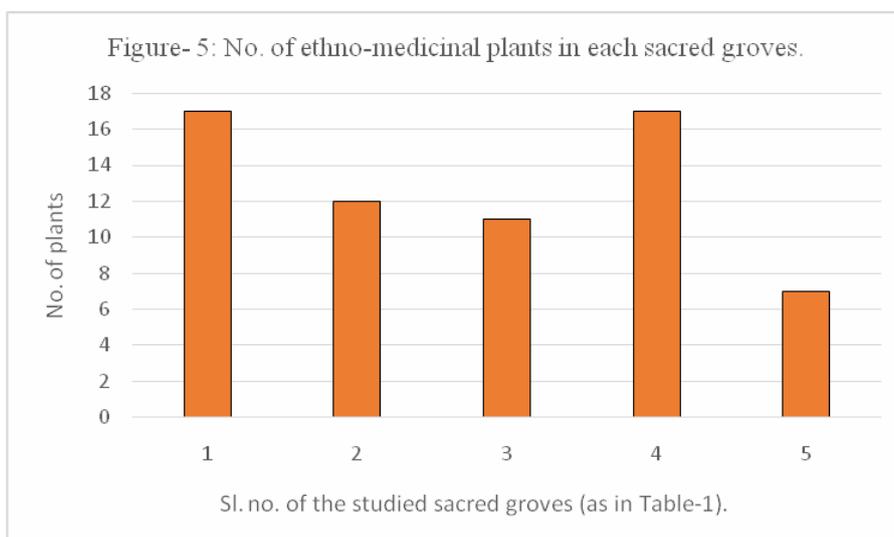
also surveyed for the presence of the medicinal plants but only a few were found outside the traditionally conserved areas. This confirms the positive role of the sacred groves as the safe house of medicinal plants which are otherwise in great threat of local extinction. Out of the five sacred groves, the

Khamarberia *Maa Chandir Than* (SG-1) and Dhabani *Sanyasi Than* (SG-4) harbour the maximum number (17 species each) of ethno-medicinal plants, followed by Hausibaid *Paharsini* (SG-2) (12 sp.) (Figure- 5). The forty (40) plants under thirty eight (38) genera belonging to twenty six (26) different families

Table 2. Details of ethno-medicinal plants found in the five Sacred groves of Bankura district, West Bengal

Sl. NO.	NAMES OF THE PLANTS	COMMON NAME (Bengali)	FAMILY	HABIT*	OCCURRENCE (SACRED GROVE NO. ^)	PART(S) USED	PURPOSE OF USE(S)
1	<i>Abrus precatorius</i> L.	Kanchhal	Fabaceae	C	1, 2	Leaf, seeds	Cough-cold, hair treatment
2	<i>Achyranthes aspera</i> L.	Chichiri	Acanthaceae	H	1, 4, 5	Leaf, stem	Wounds, skin problem
3	<i>Adhatoda vesicaria</i> Nees	Basak	Acanthaceae	S	3	Leaf, root	Cough, lung disease
4	<i>Aegle marmelos</i> (L.) Corrêa	Bel	Rutaceae	T	1, 3	Leaf, fruit	Stomach problems, fever
5	<i>Alangium salivifolium</i> (L.) Wanger.	Ankar	Alangiaceae	T	1, 2, 3, 4	Root	Hydrophobia
6	<i>Alstonia scholaris</i> (L.) R.Br.	Chhatim	Apocynaceae	T	5	Bark, leaf	Joint pain, fever, gastric
7	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	-	Anaranthaceae	H	1, 4, 5	Leaf, young shoots	Urinary problems, hair care
8	<i>Andropogon paniculata</i> (Burm. fil.) Nees	Kalmegh	Acanthaceae	H	2	Leaf	Anthelmintic
9	<i>Aristolochia indica</i> L.	Dudhikata	Aristolochiaceae	C	4	Root, stem	Snake bite, food poisoning in Cow
10	<i>Asparagus racemosus</i> Willd.	Shatanuli	Liliaceae <sup>#</sup>	C	2	Root	Tonic, hyperacidity
11	<i>Azadirachta indica</i> A.Juss.	Nem	Meliaceae	T	1, 4	Leaf, fruit	Skin disease, diabetes
12	<i>Butea monosperma</i> (Lam.) Taub.	Palash	Fabaceae	T	2, 4	Bark, seeds	Piles, tonic
13	<i>Calotropis procera</i> (Aiton) W.T. Aiton	Akan	Asclepiadaceae	S	3, 4	Leaf, stem, latex	Skin disease, eye trouble
14	<i>Capparis zeylanica</i> L.	Kelakorah	Capparidaceae	L	2	Whole plant	Anthelmintic, analgesic
15	<i>Cathartanthus roseus</i> (L.) C. Don	Nayantara	Apocynaceae	H	1, 3	Leaf	Diabetes, ulcer
16	<i>Clerodendron viscosum</i> Vent.	Ghetu	Verbenaceae	H	2, 5	Leaf, root	Swelling, tonic
17	<i>Croton bonplandianus</i> Baill.	Ghetu	Euphorbiaceae	H	1, 2, 4	Leaf	Antiseptic, stop bleeding
18	<i>Cryptolepis buchamanii</i> Roem. & Schult.	Jhunjhuni	Asclepiadaceae	C	4	Leaf, root	Blood purifier, leprosy
19	<i>Cryptolepis sinensis</i> (Lour.) Merr.	-	Asclepiadaceae	C	4	Leaf, root	Tonic, bone problem
20	<i>Dioscorea alata</i> L.	Khamalu	Dioscoreaceae <sup>#</sup>	C	3	Tuber	Piles
21	<i>Eclipta alba</i> (L.) L.	Kesut	Asteraceae	H	1, 2, 4	Leaf	Hypertension, constipation
22	<i>Ficus racemosa</i> L.	Jag-Dumur	Moraceae	T	1, 3	Leaf, seed	Kidney problem, Diabetes
23	<i>Hemidesmus indicus</i> (L.) R.Br.	Annatanul	Asclepiadaceae	C	4	Root	Skin rash
24	<i>Hibiscus rosasiniensis</i> L.	Joba	Malvaceae	T	1	Leaf, flower, root	Hair care
25	<i>Hygrophilites chullii</i> (Buch.-Ham.)M.R. Almeida & S.M. Almeida	Kulekhara	Acanthaceae	H	1	Leaf, root	Anaemia, urogenital problem
26	<i>Madhuca longifolia</i> (Koenig) J.F. Macbr.	Mohul	Sapotaceae	T	2, 5	Seed oil	Skin disease
27	<i>Mimosa pudica</i> L.	Lojjaboti	Mimosaceae	H	1, 4	Whole plant	Piles, boils, sores
28	<i>Minusops elegans</i> L.	Bokul	Sapotaceae	T	3	Bark, fruit, seeds	Tonic, anthelmintic
29	<i>Murraya paniculata</i> (L.) Jacq.	Kamini	Rutaceae	T	5	Leaf	Skin care
30	<i>Neolamarckia cadamba</i> (Roxb.) Bosser	Kadam	Rubiaceae	T	1	Bark	Tonic
31	<i>Ocimum basilicum</i> L.	Bon tulsi	Lamiaceae	H	3	Leaf	Cough & cold, fever
32	<i>Ocimum tenuiflorum</i> L.	Tulsi	Lamiaceae	H	1, 3	Leaf, root	Antibiotic, bronchitis
33	<i>Solanum isymbifolium</i> Lam.	Bon-begun	Solanaceae	S	4	Fruit, seeds	Rheumatism, tooth care
34	<i>Strychnos nuxvomica</i> L.	Kutchiya	Loganiaceae	T	3	Leaf, fruits, seeds	Heart disease, rat poison
35	<i>Syzygium cumini</i> (L.) Skeels.	Jam	Myrtaceae	T	4	Leaf, fruits, seeds	Diabetes, blood in stool
36	<i>Terminalia arjuna</i> (Roxb.) Wight & Arn.	Arjun	Combretaceae	T	2	Bark	Chest pain, liver disorder
37	<i>Tridax procumbens</i> L.	Bon-genda	Asteraceae	H	2, 5	Whole plant	Stop bleeding, liver disease
38	<i>Tylophora indica</i> (Burm. fil.) Merr.	Antamul	Asclepiadaceae	C	4	Leaf, root	Asthma, snake bite
39	<i>Vitex negundo</i> L.	Bayan	Verbenaceae	S	1, 4	Leaf, twig	Bedsore, gum care
40	<i>Ziziphus oenophylla</i> (L.) Mill.	Siakul	Rahimaceae	S	1	Leaf	Anthelmintic, skin care

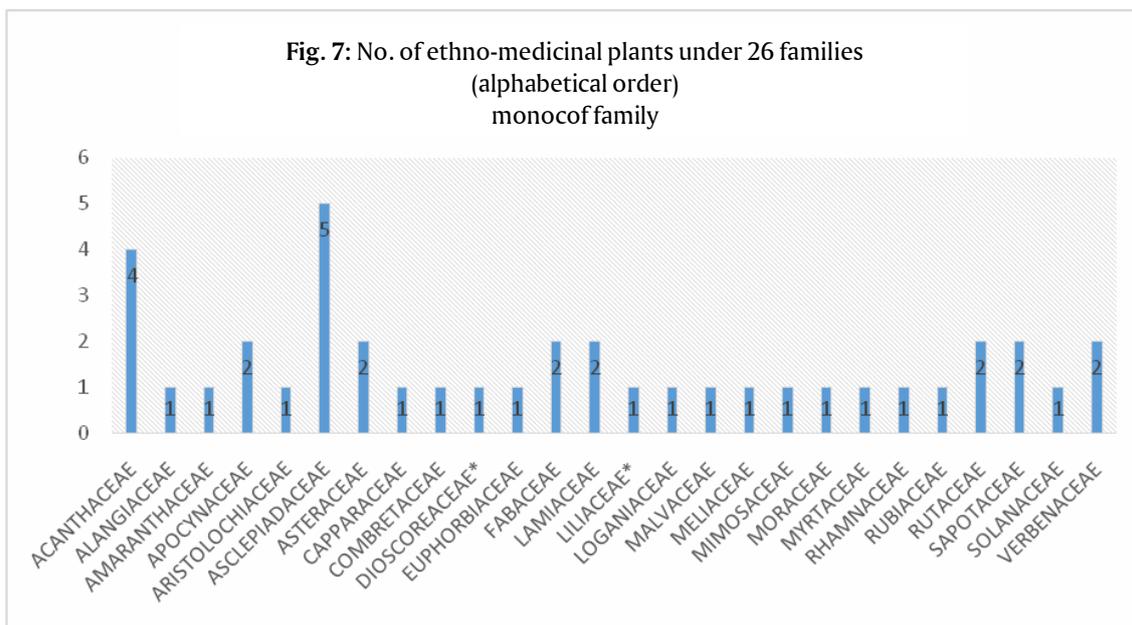
\*T= Tree, S= Shrub, H= Herb, C= Climber, L= Liana; # = Monocot families, remaining all others are dicot families; ^ See Table-1



(2 monocot and 24 dicot) of Angiosperms. Out of these, fourteen (14) species (35%) are tree, twelve (12) species (30%) are herbs, eight (8) plants (20%) are climber, five (5) plants (12%) are shrubs and only one (1) plant (3%) is liana in habit (Figure- 6). The family Asclepiadaceae has the maximum number of representatives (5 sp.), followed by Acanthaceae (4 sp.). Families like Apocynaceae, Asteraceae, Fabaceae, Lamiaceae, Rutaceae, Sapotaceae

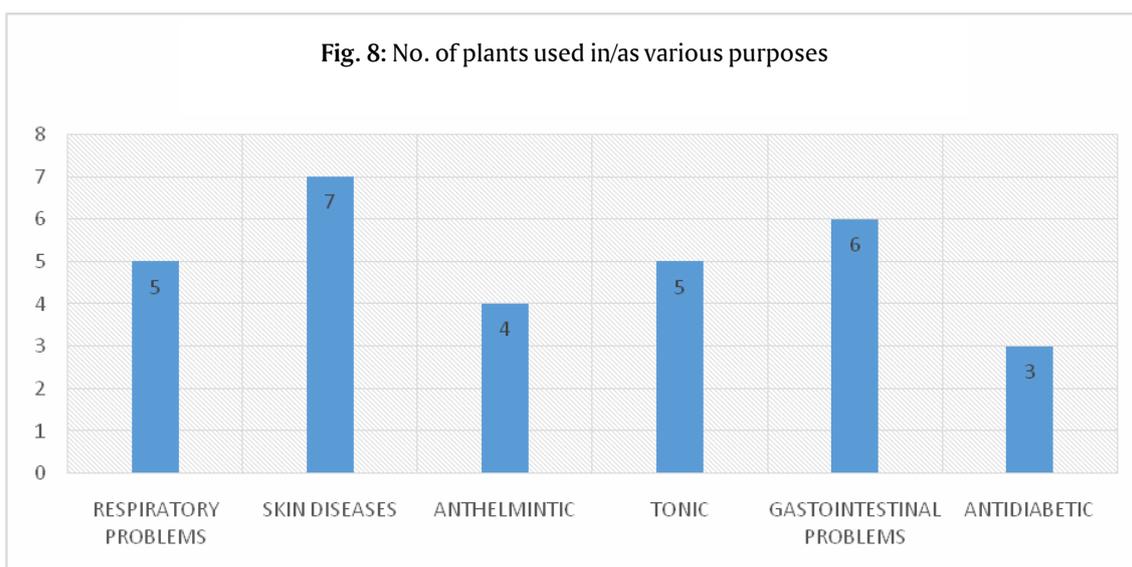
and Verbenaceae have two (2) species each (Figure-7) and the rest have one (1) species each.

The ethno-medicinal plants are used by the local people for various purposes. The major uses of a plant and its different parts are based on their traditional knowledge of several generations. The traditional methods of preparation and mode of administrations of the plants are not enlisted in the form of any



local writings but passes through the generations by verbal communications and memorizations. So, there are some differences in these methods in the different communities. However, the plants used for a particular cause remain almost the same throughout the communities. For example (Figure- 8), seven (7) plants (*Achyranthe saspera*, *Hemidesmus*

*indicus*, *Murrya paniculata*, etc.) are found to be used in the treatment of several skin problems like rash on skin, bacterial infection on skin, etc., whereas six (6) plants (*Aegle marmelos*, *Asparagus racemosus*, etc.) are used to cure various gastrointestinal problems like gastritis, mal-digestion etc. Likewise, five (5) plants are used in several respiratory diseases,



four (4) are used as anthelmintic and three (3) are used as anti-diabetic. Five (5) plants are used as food supplement tonic as to enhance strength and immunity mainly by the tribal (Santal) people of Bankura district. The tonics are mostly prepared by squashing the leaves and/or fruits of the plants (*Clerodendron viscosum*, *Neolamarckia cadamba*, *Mimusops elengi*, etc.) and taken orally. Other than that, leaves of *Aristolochia indica* are also used in the treatment of food poisoning in cows, and seeds of *Strychnos nux-vomica* are used as pest control agents (rat poison).

### CONCLUSION

The local peoples of Bankura district, West Bengal mostly belong to the economically poor category. Human health is one of the main concerns of all the time and plants are used to cure health from the ancient times, mainly because of two reasons: first- it is effective and second- it is economic. This study also reveals that despite of the advances made in primary health sectors, a large portion of the local communities still rely on the herbal medicines for their primary needs. However, the modern day threat is the depletion of community knowledge due to the lack of interests within the young generations. The traditional ecological knowledge (TEK) are thus not passing through the generations. This is a serious issue to consider as we might lose many valuable information regarding medicinal and/or other useful plants. We can hardly find any ethno-medicinal plants in their natural habitat due to several facts like over-exploitations, habitat destruction, road-ways construction, pollution, etc. thus the studied sacred grove acts as an *in-situ* conservation site for the same. This kind of ethno-medicinal plant conservation has also been recently reported by Bhakat and Sen (2017) from Midnapore

district, West Bengal. However, the sacred groves, as a whole, are also in great threat of destruction due to the modern day exploitation of the lands, pollution, biological invasion, grazing, etc. So, to protect the ethno-medicinal plants along with others, it is strongly recommend to impose a strict conservation policy on the sacred grovesto protect them.

### ACKNOWLEDGEMENTS

The authors are grateful to the rural peoples of Bankura district, West Bengal, for sharing valuable information about the sacred groves and also their traditional knowledge on the ethno-medicinal uses of the plants, with us.

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