



Ethno – Botanical Documentation of some Sacred Groves of Murshidabad district, West Bengal, India

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Abstract

Spread over an area of 5,324 km², Murshidabad district of West Bengal, India, lies between latitude 23°43'30" N & 24°50'20" N and longitude 87°49'17" E & 88°46'00"E. Within this district there are about 153 "Sacred Groves" which are small forest patches harboring many trees, bushes, shrubs, herbs, insects, amphibians, reptiles, birds and mammals. Sacred groves provide the inextricable link between present society to the past in terms of biodiversity, culture, religious and ethnic heritage. Sacred Groves are the ideal centre for biodiversity conservation preserving the local flora and fauna. In this present investigation documentation of the ethno medicinal plants from 12 (twelve) major sacred groves of Murshidabad, many of which are more than 100 years old have been carried out. 30 (Thirty) medicinal plants found in these sacred groves were commonly used by the traditional healers. These sacred groves which are repositories of great biodiversity are now faced with grave threats. The impact of modernization and education and growing disbelief in the traditional value systems among the local communities has impacted the preservation of the sacred groves. The traditional knowledge needs to be documented before the sacred groves or the traditional practices are obliterated.

Keywords: Sacred groves, Documentation, biodiversity, ethno-medicinal, conservation,

Introduction

Sacred groves constitute pristine vegetation, and are particularly rich in trees and associate groups of organisms, like epiphytes, amphibia, reptiles, birds, butterflies etc. (Khan *et al*, 2008). Hughes and Chandran in 1998 defined sacred groves as 'segments of landscape containing trees and other forms of life and geographical features, that are delimited and protected by human societies believing that preserving such a patch of vegetation in a

relatively undisturbed state is necessary for expressing one's relation to the divine or to nature' (Hughes and Chandran, 1998). Sacred groves are a group of trees or a patch of vegetation protected by the local people through religious and cultural practices evolved to minimized destruction (Isreal *et al*. 1997).

It has already been seen that the traditional beliefs and taboos have played a vital role in

maintaining these islands of biodiversity. Wherever the sacred groves existed, the indigenous traditional societies, which have a spiritual relationship with their physical environment, sustain them (Khan *et al*, 2008). Gadgil and Vartak (1975) observed that in many parts of India, sacred groves represent surviving examples of climax vegetation and are disappearing under the influence of modernization. Sacred groves, protected over centuries are often located in regions rich in biodiversity (Bhagwat and Rutte, 2006). Sacred groves provide the inextricable link between present society to the past in terms of biodiversity, culture, religious and ethnic heritage. Plant wealth and self conservation potential of sacred groves are impressive enough for them to be acknowledged as “mini biosphere reserves” (Gadgil and Vartak 1975).

Ethno-medicinal plant documentation

Documentation of traditional knowledge of ethno medicinal use of plants has been considered as a high priority to support the discoveries of drugs benefiting mankind (Patra *et al*, 2017). The people of the tribal areas are the repository of accumulated experience and knowledge about traditional uses of medicinal plants (Pushpangadan, 2002). The knowledge of these indigenous drugs has come through verbally since generation to generation and played an important role in conservation and sustainable use of biodiversity (Savithamma *et al* 2013). Results of a comparative study have also shown that sacred groves shelter high diversity of medicinal plants and have more vigorous regeneration of trees than formal forest reserves (Baraiah *et al.*, 2003). A major part of the developing countries still uses traditional folk medicine from plant resources (Mistry, 2015). Phytotherapy promotes proper utilization and also to conserve these plant resources for further future use (Patra *et al*, 2017).

The sacred groves also help in maintaining the desirable health of ecosystem, reduce habitat destruction, conserve the viable population of pollinators and predators, serve as the potential source of propagules that are required for colonization of wastelands and fallows, conserve the indigenous flora and fauna and preserve the cultural and ethical

practices developed through indigenous knowledge of generations (Godbole *et al.* 1998, Godbole and Sarnaik 2004, Tiwari *et al.* 1998a, b). Sacred groves are of great ecological significance and have the potential to provide a variety of ecosystem services (Mourato and Smith 2002). Despite being recognized by the traditional communities and cultures for its valuable contribution to livelihood, groves are often subjected to negligence (especially the smaller ones) in terms of ecosystem services which require urgent attention from conservationists as well as decision makers (De, 2017).

Many of the sacred groves are a part of religious beliefs. Many of them house cemeteries or temples. The biodiversity within the sacred grove is conserved as it is associated with religious. It is quite common to see shrines, temples, graveyards in areas designated as sacred groves. Conservation of biodiversity in Sacred Groves is a consequence of the sacred physical space of the sacred grove, which is communally shared as commons, and used to observe important social ceremonies in indigenous societies. Several cultural festivals are performed in the sacred grove, which also provide a meeting place on various occasions including social gatherings, marriage, after-death rituals, etc. (Deb and Malhotra 1997).

The sacred groves which are repositories of great biodiversity are now faced with grave threats. The impact of modernization and education and growing disbelief in the traditional value systems among the local communities has impacted the preservation of the sacred groves. Pressures of growing urbanization and industrialization, the need for roads and housing and other infrastructure has eaten into the area of the groves (Amirthalingam, 2016). The traditional knowledge needs to be documented before the sacred groves or the traditional practices are obliterated. In this present investigation documentation of the ethno medicinal plants from 12 major sacred groves of Murshidabad district of West Bengal, India, has been carried out. 37 medicinal plants found in these sacred groves were commonly used by the traditional healers.

Study area:

Spread over an area of 5,324 km², Murshidabad district of West Bengal, India, lies between latitude 23°43'30" N & 24°50'20" N and longitude 87°49'17" E & 88°46'00"E with Headquarter at Berhampore. In shape, the district resembles an isosceles triangle with its apex pointing to the North-West. The river Ganga separates it from Bangladesh. The Bhagirathi river divides it into two parts. To the west lies the Rarh, a high, undulating continuation of the Chota Nagpur plateau. The eastern portion, the Bagri, is a fertile, low-lying alluvial tract, part of the Ganges Delta. The district is drained by the Bhagirathi and Jalangi rivers and their tributaries. Bhagirathi is a branch of the Ganges, and flows southwards from Farakka barrage where it originates from the Ganges.



Fig. 1. Location Map of Murshidabad district in the state of West Bengal, India.



Fig. 2. Murshidabad district

There are about 153 "Sacred Groves" in Murshidabad district. Sacred groves exist as

small forest patches harboring many trees, bushes, shrubs, herbs, insects, amphibians, reptiles, birds and mammals. Sacred Groves are the ideal centre for biodiversity conservation preserving the local flora and fauna. Medicinal plant wealth and their sustainable use by the local communities of different sacred groves of Murshidabad district, West Bengal, India, which is mostly dominated by the Santhal tribe were documented (Bandyopadhyay and De, 2018).

Materials and Methods

12 (Twelve) sacred groves of Murshidabad district were selected for this investigation. During field visits the plants that were found in the sacred grove were listed. Table 1 is the list of sacred groves selected for the study. The ethno-botanical data was obtained from the traditional healers and local communities residing near the sacred groves.

Table 1. List of sacred groves and their approximate age selected for the study

Sl. No.	Name of the Sacred Grove	Approximate Age of the Sacred Grove (in years)
1	Baro Bigha Kaborsthan	100+
2	Jinarapara Gorosthan	100+
3	Khosbag Graveyard Sacred Grove	200+
4	Kiriteswari Temple	Time immemorial
5	Residency Cemetery of Babulbona (European Cemetery)	200+
6	Ramnagarghat Radhagobinda Mondir.	20
7	Elahiganj Cemetery	150
8	Talbagan Kaborsthan	100
9	Takib Shah Pirtala	200
10	Pataleswar Shiv Mondir	250+
11	Protestant Church Girja More	300+
12	Domdoma kali Mondir	40+



Fig. 3 Kirateswari Temple Sacred Grove



Fig 4. Elahiguange Sacred Grove



Fig 5. Khosbag Graveyard Sacred Grove



Fig. 6. Ramnagar Ghat Sacred Grove



Fig. 7. Place of worship within a Sacred Grove



Fig. 8. Worship site inside a Sacred Grove

Result:

Most of the sacred groves in this study are associated with religious beliefs. The sacred groves have graveyards or temples within them. Due to these religious structures it is a taboo to destroy any plant material within the sacred grove. It has been observed that a large number of medicinal plants commonly found within the sacred groves are used as local traditional medicines. 30 (Thirty) medicinal plants found in these sacred groves were commonly used by the traditional healers following both Kabiraji (Ayurveda) and Unani system of medicine. The lists of plants enumerated are given in the alphabetical order along with their family, local names and indigenous medicinal use in Table 2.

Table 2. List of medicinal plants used by local communities

Sl. No.	Plant's Scientific Name	Local Name	Family	Indigenous Medicinal Use
1	<i>Aegle marmelos</i> (L.) Correa,	Bael	Rutaceae	Leaves chewed and swallowed every morning help to reduced sugar of diabetes patient. Fruits fleshy part is dried, powdered and used for diarrhea
2	<i>Andrographis paniculata</i> (Burm. F.) Wall. Ex Nees	Kalmegh	Acanthaceae	For treatment of worm, cough & cold leaf is pounded and made a paste. The leaf paste soup used.
3	<i>Argemone mexicana</i> L.	Sialkata	Papaveraceae	Its oil is used for itches and other skin diseases.
4	<i>Asparagus racemosus</i> Willd	Shatamuli	Liliaceae	Root's juice is used with honey as a demulcent in bilious dyspepsia or in diarrhea.
5	<i>Barleria prinitis</i> L.	Kantajanti	Acanthaceae	Dried bark is used as powder to the children to treat whooping cough.
6	<i>Cajanus cajan</i> (L.) Huth	Arhar	Papilionaceae	Leaf juice is given at early morning to treat jaundice
7	<i>Catharanthus roseus</i> (L.) G. Don.	Nayantara	Apocynaceae	Leaf extract is used in the treatment of diabetes and hypertension.
8	<i>Centella asiatica</i> (L.) Urb.	Thankuni	Apiaceae	Fresh leaves used to control chronic dysentery and blood stool.
9	<i>Clerodendrum viscosum</i> Vent.	Ghetu	Verbenaceae	Young leaf paste soup is given in empty stomach for treatment intestinal worm
10	<i>Cissus quadrangularis</i> L.	Harjora	Vitaceae	Whole plant eaten as vegetable to reduce constipation problem. Stem paste warmed with "Ghee" is applied on the fractured bones.
11	<i>Costus speciosus</i> (Konig) Smith.	Jangli Ada	Costaceae	Fresh rhizome with pinch of salt and ginger is given to cure indigestion and flatulence
12	<i>Cyanodon dactylon</i> (Linn.) Pers.	Dubghas	Poaceae	Infusion of root is used stop bleeding from the piles. Fresh juice effectively controls the nasal bleeding, when applied as nasal drops.
13	<i>Cyperus rotandus</i> Linn.	Mutha Ghas	Cyperaceae	Essential oil is extracted from the tuber, which is said to stimulate the secretion of of milk, in lactating mothers. The acetone and ethanol extracts of tubers were found to possess anti-bacterial activity.
14	<i>Eclipta alba</i> Hassak L.	Kesut	Asteraceae	Plants used externally in scorpion stings, is used for the treatment of hepatitis, toothache and cirrhosis.
15	<i>Enydra fluctuens</i> Lour.	Helencha / Hinche	Compositae	Leaves used as vegetables for blood purifier and weakness.
16	<i>Euphorbia hirta</i> L.	Baradudhi	Euphorbiaceae	Its root is given to stop vomiting. Juice of plants used in dysentery and colic.
17	<i>Gloriosa superba</i> L.	Ulatchandal	Liliaceae	Tuber is pungent, bitter, heating, anthelmintic, laxative, abortifacient, and useful in ulcers, leprosy, piles, inflammations and abdominal pains
18	<i>Jatropha curcas</i> L.	Bharandah	Euphorbiaceae	Latex gives relief during toothache
19	<i>Kalanchoe pinnata</i> (Lam.) Pers.	Patharkuchi	Crassulaceae	Leaf juice is given in diarrhoea, cholera etc. They are slightly toasted before they are applied to wounds, cuts, ulcers,

				bites of venomous insects.
20	<i>Leucas cephalotes</i> (Roth.) Spreng.	Dandakolos	Lamiaceae	Whole plant extraction used as stimulant.
21	<i>Mimosa pudica</i> L.	Lajjabati	Mimosaceae	Root decoction also used for leucorrhoea.
22	<i>Moringa oleifera</i> Lam	Sajina Leaf	Moringaceae	Boiled in water and taken as a hot drink for blood pressure and diabetes.
23	<i>Ocimum americanum</i> L.	Ban Tulsi	Lamiaceae	Decoction of leaves used to stop bleeding, to cutaneous disease, gastric disorder of children, hepatic affections.
24	<i>Ocimum sanctum</i> L.	Tulsi	Lamiaceae	Used to treat common cold, asthma, bronchitis, fever. Leaf is used.
25	<i>Paederia scandens</i> (Lour.) Merrill	Gadal / Gandavajal	Rubiaceae	Leaves use as vegetables soup for stomach problems, indigestion.
26	<i>Phyllanthus fraternus</i> Webster	Bhui amla	Euphorbiaceae	Whole plant is used as antipyretic, antiseptic, astringent, diuretic.
27	<i>Piper betle</i> L.	Paan pata	Piperaceae	The leaf juice is applied as eye drop in painful eyes due to conjunctivitis and juice is given to cure indigestion
28	<i>Rauvolfia serpentina</i> Benth.	Sarpagandha	Apocynaceae	Roots used to reduce blood pressure.
29	<i>Solanum xanthocarpum</i> Schrad & Wendl.	Kantikari	Solanaceae	Whole plant is used as medicine with other expectorant as Bronchodilator. Fruits boiled in ghee are given for cough & toothache.
30	<i>Terminalia arjuna</i> (Roxb.ex DC.) Wt. & Arn.	Arjuna	Combretaceae	Stem bark infusion is given in the morning in an empty stomach to cure gastrointestinal troubles and heart problems

Discussion:

Different parts of medicinal plants have been used as medicine by the local traditional health healers in Murshidabad (Mistry, 2015). The state West Bengal shows rich diversity in medicinal plants in which the rural Murshidabad district is an important source of traditional medicinal plants. Till date, the local medicine men and herbalists use these plants for medicinal purposes but the compensation and dose of the plant parts are different even the application time and dose vary from site to site. Perhaps, the deviation is due to large geographical variations with the variations of factors and traditional knowledge (TK) of different ethnic people over the globe (Das and Ghosh, 2017). The impact of modernization and education and growing disbelief in the traditional value systems among the local communities has impacted the preservation of the sacred groves. The traditional knowledge needs to be documented before the sacred groves or the traditional practices are obliterated.

Understanding the biocultural relationships through which cultural values shape tropical forest diversity is now increasingly recognized as important for the conservation of both biodiversity and (tangible and intangible) cultural heritage (Gavin *et al.* 2015). Although the importance of sacred groves in community life is usually felt through religious-cultural practices their utility in life-sustaining services cannot be overlooked. The groves are also sources of important ecosystem services for local communities, including provisioning (e.g. water, medicinal plants or ornamental resources) and regulating (e.g. pollination or water purification) services (Harsha *et al.* 2002).

The pan-Indian distribution of sacred groves is a subject of great interest to biologists, social scientists, anthropologists and policy makers because groves represent a variety of ecosystems, social and ethnic identities, management regimes, legal tenures, and cultural traditions (Ray *et al.* 2014). More research is needed to assess the potential of the sacred grove for ecosystem services and

their importance in livelihood maintenance (De, 2017).

Information on changes in the herb and shrub layer of any forest ecosystem or natural ecosystem may be useful to assess present-day issues of management relating to sustainability and biodiversity in forestry and nature conservation (Adnan and Holscher, 2011). Phytosociological evaluation of the medicinal plant species is very important aspect in the field of forestry as well as in other scientific studies like conservation, management and bioprospecting of phytoresources. Documentation of indigenous knowledge through ethno-botanical studies is an important for the conservation and utilization of biological resources present within the sacred groves. The scientific study of these traditional medicines along with their proper identification and documentation is essential along with inventory preparations. Systematic conservation of the ethno-medicinal plants used in traditional healing

procedures, along with the traditional knowledge is need of the hour, before it is lost forever.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this work.

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