



ISSN 2320-3862

JMPS 2016; 4(3): 81-86

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Received: 07-03-2016

Accepted: 02-04-2016

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Diversity in the use of phytomedicines by some ethnic people of Paschim Medinipur, West Bengal, India

Samita Manna, Chanchal Kumar Manna

Abstract

The present study deals with about sixty three plants belonging to thirty two families used by three ethnic people e.g., the Lodha, the Santal and the Munda of the district Paschim Medinipur, West Bengal, INDIA. These plants are mainly used by the medicine men of the particular tribal people for the treatment of various types of diseases. During the time of application, people of the three tribal communities, worship their deities and perform various magical practices uttering incantation or commonly used the term as 'mantra'. A close scrutiny of these plants clearly indicates that there is a diversity in the use of plants for the treatment of seven types of common diseases e.g., cough & cold, stomach upset, vomiting, fever, etc. These medicinal plants have been used by the tribal people for the time immemorial but the efficacies of these medicines are not yet properly established. So proper documentations of these plants are highly appreciated.

Keywords: Medicine man, Tribal people, Mantra, Diversity, Worship, Traditional

1. Introduction

India is enriched with a vast heritage of biodiversity and traditional use of phytomedicines practiced by various groups of ethnic people. Indigenous communities have preserved their traditional knowledge on the uses and management of wild plant resources [1-5]. The traditional wisdom regarding the use of medicinal plants is not only useful for conservation of cultural traditions, but also for community health care and development of some new drugs for the common people [6, 7].

With the rapid growth of science and technology tremendous changes have taken place in everyday life of the people throughout the world. India is not an exception. The loss of traditional knowledge and culture of human life is due to loss of plant species as these irreversible changes not only affect their material cultures but non-material cultures have also been affected by these processes of change. Humans are no longer simply members of homogeneous group. They are the integrated part of the complex cultures. Till today most of them are dependent on nature, utilizing their environment and ecology with the help of technology. Even today they combat against their ill health and other crisis situation with their indigenous methods of utilizing their natural resources [8].

In India, there is a diversity of various ethnic groups. It is known that more than 400 different tribes and other ethnic groups [9] and their combined population comprise more than 7.5% of the total population of the country. In this context, Paschim Medinipur is enriched for its ethnic population as jungles, hills, forests etc., are the natural habitat of these people. Three ethnic groups have been selected for the present study. They are the Lodhas (hunters and gatherers), the Santals (mainly agriculturists) and the Mundas (agriculturists). These tribal people are the autochthonese group and they have very close association with the nature.

From the age-old times, different plants have been used as source of medicines by the tribals. They have good faith on the traditional system of native folklore – medicine and they rely exclusively on their own herbal cures. According to the World Health Organization (WHO), nearly 80% of the people depend upon traditional medicines for primary health care needs [10]. The tribal people of the Paschim Medinipur have also shown a great belief on the traditional knowledge of medicine [11]. The medicinal plants are usually collected from the nearby forests of the district. They prepare the medicines from several plant species and apply to the common people for remedial purposes. These medicine men belong to three ethnic groups – the Lodha, Munda and Santal and they use various plant species for the cure of same type of disease.

So there is a diversity in the method of preparation and the uses of plants. The present study will highlight the uses of the medicines prepared from different plant sources and methods of using the plants for curing several types of diseases by the three ethnic groups of the district Medinipur, West Bengal, India.

Study area

This study was undertaken in the district Paschim Medinipur, West Bengal, India. It is located in the South Western side of West Bengal. It lies between 21° 47" and 23° N latitude and between 86° 40" and 87° 52" E longitude.

Climate

The climate is tropical and the land surface of the district is characterized by hard rock uplands, lateritic covered area, and flat alluvial and deltaic plains. The climate is characterized by hot summer, cold winter, abundant rainfall and humidity from 1450mm to 1560 mm per year.

Tribal people

The Lodhas

The Lodhas of West Bengal were one of the ex-criminal tribes in India (Fig. 1). But now they are identified as denotified community. Mainly they were the hunters/gatherers as they live in forest. But now they practise agriculture. The Lodhas are strictly endogamous family. Poor socio-economic conditions compel them to live in nuclear families.



Fig 1: Balaram Digar- a Lodha medicinal man (a *Gunin*)

The Santals

The Santal community belongs to the Austro-Asiatic group. The Santal society is patriarchal and the dominance of the male is found in every affair of their life (Fig. 2). They are in general bilingual. They are mainly involved in agricultural work.



Fig 2: Gopal Hansda – A Santal Medicinal Man (A *Gunin*)

The Mundas

The Mundas hold a unique position in the tribal map of India. The Munderi speaking people are called Kolarians. Generally the Mundas live in villages and most of them are agriculturists (Fig. 3). Their society is patriarchal and patrilineal. The Mundas have belief in the potent evil powers of witch.



Fig 3: Shyam Singh – A Munda medicine man (a *Gunin*) and his wife

Materials and methods

Two blocks of Paschim Medinipur, West Bengal, having dominant tribal people like the Lodhas, Santals and Mundas were selected for the present study. Frequent field visits were conducted to different tribal villages nearer to the forests. A number of medicine practitioners, locally known as ‘*Gunins*’ of each tribal people, were interviewed to know their traditional knowledge about the diseases and various methods of treatment by the medicines prepared from various plant parts and other ingredients. After thorough interrogation the various plant parts were collected with the help of the medicine men of each tribal people from the locality and nearby forests. Voucher specimens of these plant species (with the flowering parts) were gathered and preserved as the herbarium specimens in the Department of Sociology, University of Kalyani, Nadia, W.B. All the plants were identified by Professor G.G. Maiti and Professor S.K. Mukherjee, Department of Botany, University of Kalyani. Interrogation of the tribal medicine men of these three tribal groups were made only for curing the following diseases:

- a) Loose motion; b) Cough & cold; c) Fever; d) Snake bite; e) Headache; f) Arthritis; g) Vomiting; h) Bleeding; i) Itching and j) Jaundice

Observations

The ethnomedicinal information regarding treatment of some common but important diseases were gathered through applying various questions from the medicine men and the plants which were collected for such types of study in the course of field survey are presented in the tabular form. A comparative account has been cited in the use of the medicinal plants by the three tribal people of Paschim Medinipur. The medicine men of these three tribal groups are different. Sometimes they have shown their common views regarding the application of phytomedicine to their patients in time of sufferings. The common name, scientific name, family and the parts used of these plants have been categorized and plotted in the tabular form (Table No. 1). Regarding the uses of these plants for curing diseases in the pattern of uses of the plants by the medicine men of three tribal communities have been noticed (Table No. 2 a-h).

Table 1: List of Medicinal plants used by the LODHA, the MUNDA and the SANTAL Tribal People of the District Midnapore, West Bengal, India

S. No.	Common Name	Scientific Name	Family	Plant parts used
1	Ginzer	<i>Zingiber officinale</i> Rosc.	Zingiberaceae	Juices of rhizome
2.	Akand	<i>Calotropis gigantea</i> (L.) R.Br.ex.Ait.	Asclepiadaceae	Leaf juice
3.	Sal tree	<i>Shorea robusta</i> Roxb. ex Gaertn. f.	Dipterocarpaceae	Root extract
4.	Guava tree	<i>Psidium guajava</i> L.	Myrtaceae	Leaf extract
5.	Arjun tree	<i>Terminalia cuneata</i> Roth	Combretaceae	Bark extract
6.	White akanda	<i>Calotropis gigantea</i> (L.)R.Br.ex.Ait	Asclepiadaceae	Leaf extract
7.	Ghrit kumari	<i>Aloe barbadensis</i> Mil.	Liliaceae	Leaf extract
8.	Manasa plant	<i>Euphorbia nerifolia</i> L.	Euphorbiaceae	Leaf extract
9.	Kundri	<i>Coccinia grandis</i> (L.) Voigt	Cucurbitaceae	Leaf extract
10.	Anantamul	<i>Hemidesmus indicus</i> (L.) R.Br.	Asclepiadaceae	Root extract
11.	Varenda plant	<i>Jatropha gossypifolia</i> L.	Euphorbiaceae	Leaf extract
12.	Gaisira	<i>Asparagus racemosus</i> Willd.	Liliaceae	Leaf extract
13.	Patal garu	<i>Rauwolfia tetraphylla</i> L.	Apocynaceae	Root extract
14.	Rakat Rahara	<i>Periploca graeca</i>	Asclepiadaceae	Root extract
15.	Pasu kedar	<i>Curcuma aromatica</i> Salisb.	Zingiberaceae	Root extract
16.	Bisalla karani/Mahul tree	<i>Barleria lupulina</i> Lindl.	Acanthaceae	Leaf extract
17.	Sarpagandha	<i>Rauwolfia serpentina</i> (L.) Benth.ex Kurz	Apocynaceae	Root extract
18.	Nisinda	<i>Vitex negundo</i> L.	Verbenaceae	Whole plant
19.	Tulsi	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	Leaf extract
20.	Apang	<i>Achyranthes aspera</i> L.	Amaranthaceae	Root extract
21.	Am	<i>Mangifera indica</i> L.	Anacardiaceae	Leaf extract
22.	Mahua/ Mahul	<i>Madhuca indica</i> J.F. Gmel.	Sapotaceae	Bark extract
23.	Vasaka	<i>Adhatoda zeylanica</i> Medic.	Acanthaceae	Leaf extract
24.	Seoli	<i>Nyctanthes arbor-tristis</i> L.	Oleaceae	Leaf extract
25.	Kalmegh	<i>Andrographis paniculata</i> Wall.ex Nees	Acanthaceae	Leaf extract
26.	Amrul	<i>Oxalis corniculata</i> L.	Oxalidaceae	Leaf extract
27.	Iswarimul	<i>Aristolochia indica</i> L.	Aristolochiaceae	Leaf and root extract
28.	Bhela	<i>Semecarpus anacardium</i> L.f.	Anacardiaceae	Fruit extract
29.	Karanj	<i>Pongamia pinnata</i> (L.) Pierre	Papilionaceae	Extract of leaf
30.	Bel	<i>Aegle marmelos</i> (L.)Corr.Serr.	Rutaceae	Leaf and root extract
31.	Nim	<i>Azadirachta indica</i> A.Juss.	Meliaceae	Root extract
32.	Shankachura	<i>Sansevieria trifasciata</i> Prain	Liliaceae	Leaf extract
33.	Lal Manasa	<i>Synadenium grantii</i> Hook.f.	Euphorbiaceae	Leaf and root extract
34.	Bichuti pata	<i>Fleurya interrupta</i> Gaudich.	Urticaceae	Leaf extract
35.	Sibjata	<i>Sansevieria roxburghiana</i> Schult.f.	Liliaceae	Leaf extract
36.	Chandor plant	<i>Rauwolfia tetraphylla</i> L.	Apocynaceae	Root extract
38.	Arum(Mankochu)	<i>Alocasia indica</i> (Roxb.)Schott	Araceae	Root extract
39.	Posu kedar	<i>Curcuma aromatica</i> Salisb.	Zingiberaceae	Leaf extract
40.	Marrie gold	<i>Tagetes erecta</i> L.	Compositae	Leaf extract
41.	Halencha plant	<i>Enhydra fluctuans</i> Lour.	Compositae	Leaf extract
42.	Mustard	<i>Brassica nigra</i> (L.) Koch	Brassicaceae	Seed extract
43.	Garlic plant	<i>Allium sativum</i> L.	Alliaceae	Stem extract
44.	Gulach tree	<i>Plumeria alba</i> L.	Apocynaceae	Leaf extract
45.	Satamuli plant	<i>Asparagus racemosus</i> Willd.	Asparagaceae	Stem extract
47.	Jai Bahadur	<i>Arisaema tortuosum</i> Schott	Araceae	Leaf extract
48.	Gulancha	<i>Tinospora cordifolia</i> (Willd.) Miers ex Hook.f.et Thoms.	Manispermaceae	Root extract
49.	Jam tree	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Root extract
50.	Lemon	<i>Citrus limon</i> (L.) Burm.f.	Rutaceae	Fruit extract
51.	Piplas tree	<i>Litsea glutinosa</i> (Lour.) C.B. Robins.	Lauraceae	Leaf extract
52.	Kasmila	<i>Lannea coromandelica</i> (Houtt.)Merr.	Anacardiaceae	Bark extract
53.	Dudhi lata	<i>Ichnocarpus frutescens</i> R.Br.	Apocynaceae	Latex of plant
54.	Latapata plant	<i>Mikania cordata</i> (Burm.) B.L. Robinson	Compositae	Leaf extract
55.	Dhulimera plant	<i>Clerodendrum indicum</i> (L.) O.Ktze.	Verbenaceae	Stem extract
56.	Akanda Katha	<i>Stephania hernandifolia</i> Walp.	Manispermaceae	Bark extract
57.	Durba ghas	<i>Cynodon dactylon</i> (L.) Pers.	Gramineae	Leaf extract
58.	Nargi plant	<i>Eupatorium odoratum</i> L.	Compositae	Stem extract
59.	Bon chakunda	<i>Cassia alata</i> L.	Caesalpiniaceae	Leaf extract
60.	Nengus tree	<i>Mucuna prurita</i> Hook.	Papilionaceae	Root extract
61.	Chatina plant	<i>Alstonia scholaris</i> (L.)R.Br.	Apocynaceae	Latex of plant
62.	Tungur(arahar plant)	<i>Cajanus cajan</i> (L.)Millsp.	Papilionaceae	Leaf extract
63.	Pipul	<i>Ficus religiosa</i> L.	Moraceae	Root extract
64.	Turmeric	<i>Curcuma domestica</i> Valetton	Zingiberaceae	Stem extract
65.	Bon jamir	<i>Citrus</i> sp.	Rutaceae	Fruit extract
66.	Challa plant	<i>Holoptelea integrifolia</i> Planch.	Urticaceae	Bark extract
67.	Valia plant	<i>Semecarpus anacardium</i> L.f.	Anacardiaceae	Fruit gum
68.	Black pepper	<i>Piper nigrum</i> L.	Piperaceae	Fruit powder

Table 2: Diversity in the use of medicinal plants by the tribal people of the district Paschim Medinipur, W.B. India, for various ailments
a) Loose Motion

Name of the Disease	Lodha	Munda	Santal
Loose Motion	1) Sal tree (Root) <i>Shorea robusta</i> Roxb.ex Gaertn.f.	1) Guava tree (Leaves) <i>Psidium guajava</i> L.	1) Iswarimul (root)* <i>Aristolochia indica</i> L.
	2) Mahua tree (Extract of leaf) <i>Madhuca indica</i> J.F.Gmel	2) Arjun tree (Extract of bark) <i>Terminalia cuneata</i> Roth	2) Black Pepper (fruit) <i>Piper nigrum</i> L.
	3) Kundri (Root) <i>Coccinia grandis</i> (L.) Voigt	3) Akanda plant (leaves) <i>Calotropis gigantea</i> (L.) R.Br.ex.Ait.	3) Anantamul (Root) <i>Hemidesmus indicus</i> (L.) R.Br.
	4) Iswarimul (Root)* <i>Aristolochia indica</i> L.	4) Varendra plant (Extract of leaf) <i>Jatropha gossypifolia</i> L.	4) Tulsi (Leaves) <i>Ocimum tenuiflorum</i> L.
	5) Mango tree (Leaf) <i>Mangifera indica</i> L.	5) Gaisira (Extract of root) <i>Asparagus racemosus</i> Willd.	5) Patal garu (Extract of root) <i>Rauwolfia tetraphylla</i> L.

b) Cough & Cold

Name of the Disease	Lodha	Munda	Santal
Cough & Cold	1) Basak Plant (Extract of leaves) <i>Adhatoda zeylanica</i> Medic.	1) Tulsi Plant (Extract of leaves) <i>Ocimum tenuiflorum</i> L.	1) Ginger (Extract of root) <i>Zingiber officinale</i> Rosc.
	2) Manasa plant (Extract of leaves) <i>Euphorbia neriifolia</i> L.	2) Manasa plant (Extract of leaves) <i>Euphorbia neriifolia</i> L.	2) Manasa plant (Extract of leaves) <i>Euphorbia neriifolia</i> L.
	3) Tulsi plant (Extract of leaves) <i>Ocimum tenuiflorum</i> L.	3) Ginger (Extract of root) <i>Zingiber officinale</i> Rosc.	3) Tulsi plant (Extract of leaves) <i>Ocimum tenuiflorum</i> L.
	4) Mango tree (Extract of leaves) <i>Mangifera indica</i> L.	4) Karanja tree (Extract of seed) <i>Pongamia pinnata</i> (L.) Pierre	4) Basak Plant (Extract of leaves) <i>Adhatoda zeylanica</i> Medic.
		5) Basak Plant (Extract of leaves) <i>Adhatoda zeylanica</i> Medic.	

c) Fever

Name of the Disease	Lodha	Munda	Santal
Fever	1) Tulsi Plant (Extract of leaves) <i>Ocimum tenuiflorum</i> L.	1) Seuli tree (Extract of leaves) <i>Nyctanthes arbor-tristis</i> L.	1) Challa plant (Only bark) <i>Holoptelea integrifolia</i> Planch.
	2) Amrul (Extract of leaves) <i>Oxalis corniculata</i> L.	2) Kalmegh plant (Extract of leaves) <i>Andrographis paniculata</i> Wall.ex Nees	2) Valia plant (Gum of the fruit) <i>Semecarpus anacardium</i> L.f.
	3) Seuli tree (Extract of leaves) <i>Nyctanthes arbor-tristis</i> L.	3) Tulsi plant (Extract of leaves) <i>Ocimum tenuiflorum</i> L.	3) Seuli tree (Extract of leaves) <i>Nyctanthes arbor-tristis</i> L.
	4) Basak plant (Extract of leaves) <i>Adhatoda zeylanica</i> Medic.	4) Basak plant (Extract of leaves) <i>Adhatoda zeylanica</i> Medic.	4) Kalmegh plant (Extract of leaves) <i>Andrographis paniculata</i> Wall.ex Nees
	5) Apang tree (Extract of root) <i>Achyranthes aspera</i> L.	5) Iswarimul (Extract of root and leaves) <i>Aristolochia indica</i> L.	

d) Snake Bite

Name of the Disease	Lodha	Munda	Santal
Snake Bite	1) Patal Garu (Extract of root) <i>Rauwolfia tetraphylla</i> L.	1) Pasu Kedar (Extract of root) <i>Curcuma aromatica</i> Salisb.	1) Bisalla Karani (Extract of leaves) <i>Barleria lupulina</i> Lindl.
	2) Shankachura (Extract of leaf) <i>Sansevieria trifasciata</i> Prain	2) Chandor plant (Extract of root) <i>Rauwolfia tetraphylla</i> L.	2) Sibjata (Extract of leaves) <i>Sansevieria roxburghiana</i> Schult.f.
	3) Lal Manasa (Extract of root & leaf) <i>Synadenium grantii</i> Hook.f.	3) Arum (Mankochu) (Extract of root) <i>Alocasia indica</i> (Roxb.)Schott	3) Neem tree (Extract of root) <i>Azadirachta indica</i> A.Juss.
	4) Bichuti Pata (Extract of leaves) <i>Fleurya interrupta</i> Gaudich.	4) Ginger (Extract of root) <i>Zingiber officinale</i> Rosc.	4) Pasu Kedar (Extract of leaves) <i>Curcuma aromatica</i> Salisb.
	5) Sibjata <i>Sansevieria roxburghiana</i> Schult.f.	5) Patal Garu (Extract of root) <i>Rauwolfia tetraphylla</i> L.	5) Patal Garu (Extract of root) <i>Rauwolfia tetraphylla</i> L.

e) Headache

Name Of The Disease	Lodha	Munda	Santal
Headache	1) Marrie Gold (Extract of leaves) <i>Tagetes erecta</i> L.	1) Karala plant <i>Momordica charantia</i> L.	1) Mahul tree (Extract of bark) <i>Madhuca indica</i> J.F.Gmel.
	2) Halencha plant (Extract of leaves) <i>Enhydra fluctuans</i> Lour.	2) Guava tree (Extract of root) <i>Psidium guajava</i> L.	2) Garlic plant (Extract of root) <i>Allium sativum</i> L.

	3) Mustard (Extract of seed) <i>Brassica nigra</i> (L.) Koch	3) Gulach tree (Extract of leaves) <i>Plumeria alba</i> L.	3)Ghrita Kumari (Extract of leaves) <i>Aloe barbadensis</i> Mil.
	4) Ghrita Kumari (Extract of leaves) <i>Aloe barbadensis</i> Mil.	4) Ghrita Kumari (Extract of leaves) <i>Aloe barbadensis</i> Mil.	4) Gulach tree (Extract of leaves) <i>Plumeria alba</i> L.
	5) Mahul tree (Extract of bark) <i>Madhuca indica</i> J.F.Gmel	5) Marrie Gold (Extract of leaves) <i>Tagetes erecta</i> L.	5) Mustard plant (Extract of seed) <i>Brassica nigra</i> (L.) Koch

f) Arthritis

Name of the Disease	Lodha	Munda	Santal
Arthritis	1) Satamuli plant (Extract of root) <i>Asparagus racemosus</i> Willd.	1) Satamuli plant (Extract of root) <i>Asparagus racemosus</i> Willd.	1) Marrie Gold (Extract of leaves) <i>Tagetes erecta</i> L.
	2) Apang tree (Extract of root) <i>Achyranthes aspera</i> L.	2) Apang tree (Extract of root) <i>Achyranthes aspera</i> L.	2) Satamuli plant (Extract of root) <i>Asparagus racemosus</i> Willd.
	3) Bisallakarani (Extract of leaves) <i>Barleria lupulina</i> Lindl.	3) Marrie Gold (Extract of leaves) <i>Tagetes erecta</i> L.	3) Bisallakarani (Extract of leaves) <i>Barleria lupulina</i> Lindl.
	4) Jai Bahadur (Extract of leaf) <i>Arisaema tortuosum</i> Schott	4) Gulancha (Extract of root) <i>Tinospora cordifolia</i> (Willd.) Miers ex Hook.f.et Thoms.	4) Garlic (Extract of root) <i>Allium sativum</i> L.

g) Vomiting

Name of the Disease	Lodha	Munda	Santal
Vomiting	1) Sal tree (Extract of bark) <i>Shorea robusta</i> Roxb.ex Gaertn.f.	1) Lemon tree (Extract of fruit) <i>Citrus limon</i> (L.)Burm.f.	1) Sal tree (Extract of bark) <i>Shorea robusta</i> Roxb.ex Gaertn.f.
	2) Kundri plant (Extract of leaves) <i>Coccinia grandis</i> (L.) Voigt	2) Piplas tree (Extract of leaves) <i>Litsea glutinosa</i> (Lour.) C.B.Robins.	2) Gaisira (Extract of leaf) <i>Asparagus racemosus</i> Willd.
	3) Jam tree (Extract of root) <i>Syzygium cuminii</i> (L.) Skeels	3) Iswarimul (Extract of root) <i>Aristolochia indica</i> L.	3) Piplas tree (Extract of leaves) <i>Litsea glutinosa</i> (Lour.) C.B.Robins.
	4) Kasmila (Extract of bark) <i>Lannea coromandelica</i> (Houtt.)Merr.	4) Akanda Katha (Extract of bark) <i>Stephania hernandifolia</i> Walp.	4) Akanda Katha (Extract of bark) <i>Stephania hernandifolia</i> Walp.
	5) Arjun tree (Extract of bark) <i>Terminalia cuneata</i> Roth	5) Arjun tree (Extract of bark) <i>Terminalia cuneata</i> Roth	5) Arjun tree (Extract of bark) <i>Terminalia cuneata</i> Roth

h) Bleeding

Name of the Disease	Lodha	Munda	Santal
Bleeding	1) Pasukedar plant (Extract of root) <i>Curcuma aromatica</i> Salisb.	1) Latapata plant (Extract of leaves) <i>Mikania cordata</i> (Burm.) B.L.Robinson	1) White Akanda (Gum of plant) <i>Calotropis gigantea</i> (L.)R.Br.ex.Ait
	2) Dudhi Lata (Gum of plant) <i>Ichnocarpus frutescens</i> R.Br.	2) Durba Ghas (Extract of leaves) <i>Cynodon dactylon</i> (L.) Pers.	2) Bisallakarani (Extract of leaves) <i>Barleria lupulina</i> Lindl.
	3) Latapata plant (Extract of leaves) <i>Mikania cordata</i> (Burm.)B.L.Robinson	3) Dudhi Lata (Gum of plant) <i>Ichnocarpus frutescens</i> R.Br.	3) Pasukedar plant (Extract of leaves) <i>Curcuma aromatica</i> Salisb.
	4) Tulsi plant (Extract of leaves) <i>Ocimum tenuiflorum</i> L.	4) Tulsi plant (Extract of leaves) <i>Ocimum tenuiflorum</i> L.	4) Tulsi plant (Extract of leaves) <i>Ocimum tenuiflorum</i> L.
	5) White Akanda (Gum of plant) <i>Calotropis gigantea</i> (L.)R.Br.ex.Ait	5) Bisallakarani (Extract of leaves) <i>Barleria lupulina</i> Lindl.	5) Durba Ghas (Extract of leaves) <i>Cynodon dactylon</i> (L.) Pers.

i) Itching

Name of the disease	Lodha	Munda	Santal
Itching	1) Dhulimera plant* (Only stem) <i>Clerodendrum indicum</i> (L.) O.Ktze.	1) Nargi plant (Only stem) <i>Eupatorium odoratum</i> L.	1) Bon Chakunda (Extract of leaf) <i>Cassia alata</i> L.
	2)Nengus tree (Only root) <i>Mucuna prurita</i> Hook.	2) Karanja tree (Boiled leaves) <i>Pongamia pinnata</i> (L.) Pierre	2) Kasmila (Extract of bark) <i>Lannea coromandelica</i> (Houtt.)Merr.
	3) Nargi plant (Only stem) <i>Eupatorium odoratum</i> L.	3) Bon Chakunda (Extract of leaf) <i>Cassia alata</i> L.	3) Dhulimera plant* (Stem) <i>Clerodendrum indicum</i> (L.) O.Ktze.
	4) Chatina plant (Mucilage of plant) <i>Alstonia scholaris</i> (L.)R.Br.	4) Nengus tree (Only root) <i>Mucuna prurita</i> Hook.	4) Nargi plant (Only stem) <i>Eupatorium odoratum</i> L.
	5) Kasmila (Extract of bark) <i>Lannea coromandelica</i> (Houtt.)Merr.	5) Dhulimera plant* (Only stem) <i>Clerodendrum indicum</i> (L.) O.Ktze.	5) Karanja tree (Boiled leaves) <i>Pongamia pinnata</i> (L.) Pierre

j) Jaundice

Name of the disease	Lodha	Munda	Santal
Jaundice	1) Apang tree * (Extract of fruit) <i>Achyranthes aspera</i> L.	1) Arahar tree (Extract of leaves) <i>Cajanus cajan</i> (L.)Millsp.	1) Bon Jamir (Extract of fruit) <i>Citrus limon</i> (L.)Burm.f.
	2)Tungur (Extract of leaves) <i>Cajanus cajan</i> (L.)Millsp.	2) Apang tree * (Extract of fruit) <i>Achyranthes aspera</i> L.	2) Arahar plant (Extract of leaves) <i>Cajanus cajan</i> (L.)Millsp.
	3) Anantamul *** (Extract of root) <i>Hemidesmus indicus</i> (L.) R.Br.	3) Pipul (Extract of root) <i>Ficus religiosa</i> L.	3) Anantamul *** (Extract of root) <i>Hemidesmus indicus</i> (L.) R.Br.
	4) Neem ** (Extract of leaves) <i>Azadirachta indica</i> A.Juss.	4) Tumeric**** (Extract of root) <i>Curcuma domestica</i> Valetton	4) Seuli (Extract of root) <i>Nyctanthes arbor-tristis</i> L.
	5) Durba Ghas (Extract of leaves) <i>Cynodon dactylon</i> (L.) Pers.	5) Neem ** (Extract of leaves) <i>Azadirachta indica</i> A.Juss.	5) Turmeric**** (Extract of root) <i>Curcuma domestica</i> Valetton

Discussion

A close scrutiny of the present survey work clearly indicates that there is a gradual declining tendency of the use of medicinal plants by the tribal people of the district Paschim Medinipur, W.B., INDIA. It may be due to lack of knowledge about herbal medicine, malpractice of the 'Ojha' and scarcity of medicinal plants due to deforestation and acquisition of lands for industry and human habitation.

During the time of the ethno medicinal studies of the district Paschim Medinipur, West Bengal, India, as many as 63 species of medicinal plants, belonging to 35 families used by the medicine men of the Lodhas, the Santals and the Mundas were documented. These data have been checked with the available literature [12, 13, 9, 14-16]. It is observed that these tribal people suffer from a number of diseases; some of them are quite common e.g., a) Loose motion; b) Cough & cold; c) Fever; d) Snake bite; e) Headache; f) Arthritis; g) Vomiting; h) Bleeding; i) Itching and j) Jaundice. The preparation of medicine is the folk art of a medicine man. Usually the crude extract of the plants especially the leaves are given to the patients. Sometimes, the roots, rhizomes, stems, fruits, bark and latex are also used. Usually the medicine men learn the methods of preparation of medicine from their preceptors or Gurus. They maintain the confidentiality of the methods. But they have a strong belief about the effectiveness of their own medicine.

The information are mainly collected from different medicine men or 'Gunins' of the three particular tribal groups. The role of Gunins is immense. They are the informants of the ethno medicinal plants. Usually the plants are collected at a particular period of the month (either at the time of Full moon or New moon) and keep them in the sacred place. During the time of application they worship their deities and perform various magical practices. It is interesting to note that for the treatment of one type of ailment various types of plants have been used by the three groups of tribal people. Not only that same plant (e.g., roots of Iswarimul have been used by the Lodha medicine man for loose motion whereas the same plant extracts have been used by the Munda medicine men for the treatment of fever and vomiting) has been used for the treatment of various types of disease. Sometimes the same medicinal plant (e.g., Manasa plant, *Euphorbia neriifolia* L.) has been used by the three Medicine men (of Lodha, Santal and Munda) for the treatment of cold and cough. So a diversity has been noticed in the use of plant medicines for various types of diseases.

Hence there is an urgent need to collect more information about the use of medicinal plants through the different medicine men of these tribal people and to conserve the medicinal plants and prevent their exploitation and extinction. As a result for sustainable development, preservation of these plant species is also important [17]. Indigenous medication by the medicine men of the Lodha, Santal and Munda communities are still practiced in the district Paschim Medinipur, West Bengal. It is now fast disappearing due to modernization and lack of proper documentation. So proper documentation and preservation of tribal knowledge on medicinal plants are urgently required.

Acknowledgements

The authors are thankful to the Institute of the Social Research and Applied Anthropology, Bidisha, Phulgeria, Paschim Medinipur for their immense help in conducting the field study. The authors express their gratitudes to the informers and tribal medicine men of each tribal group for their wholehearted help and co-operation during the time of

field survey. They are also thankful to Professors. G.G. Maiti and S. Mukherjee (Department of Botany, University of Kalyani), for identification of the plants and to Professor G. Paul (Dean, Faculty of Science, University of Kalyani) for some important suggestions of this study.

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