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Research Article

A Report to the Rare and Endangered Medicinal Plants Resources in the Dry Deciduous Forest Areas of Paschim Medinipur district, West Bengal, India

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Abstract

The plants have been used in the traditional health care system, particularly in the local ethnic communities from ancient period. About 80% of the population in the developing countries depends directly on plants for its medicine. In India there are more than 8000 species which have been identified as medicinal plants. It is reported that for 65% of population, traditional medicine is the only available sources of health care. About 72% dry deciduous forests present in Paschim medinipur district and surrounded by lateritic soil, which is consider of the richest resources of medicinal plants in West Bengal. The survey has been carried in the various zone of this dry deciduous forest areas and various ethnobotanical information was collected during July- 2007 to Aug-2011, from various secondary as well as through observation and gathering information from local medicinal practitioners. In formal interview and discussion were held with local ethnic people for recording the traditional knowledge of local medicinal uses. During the study find out that about 21 plants species used for medicinal purposes so far. Enumeration includes details like botanica name, family, actual medicinal parts and medicinal value. The present study is to investigate the medicinal plants species in these forest areas and to enhance the local ethnic people to proper identification and conservation of medicinal plants which is more valuable in their daily day life.

Key Words: Lateritic zone**,** ethnic communities, Paschim Medinipur, traditional knowledge, conservation.

Introduction

Since the dawn of human civilization, men have been used plants as a source of medicine, because they were available in the immediate environment. The most effective once from them were selected and now become a part of ethno medical traditions. Unlike other crop plants, medicinal plants were less vulnerable to disease and insect attack. Plant provide various kind of drugs and medicines and our dependence on medicinal plants has no way been minimized by the use of modern system of synthetic drugs whose use are not without side effect. In India, there are more than 7000 species, which have been identified as medicinal plants.

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They are used mostly as infusion or decoction of the plant parts such as roots, tubers, stems, leaves, flowers or fruits [1].

The indigenous system of medicine practiced in India is based mainly on the use of plants. Charaka Samhita (1000 BC-100 AD) has recorded the 2000 vegetable remedies. Anicient medicine was not solely based on empiricism and this is evident from the fact that some medicinal plants which were used in ancient times still have their place in modern therapy [2]. Chemically, depending on their active principles, plants may have alkaloids, glycosides, steroides or other groups of compounds which may have marked pharmaceuticals action as anticancerous, antimalarial, antihelmenthic or antidysentric, etc. Paschim Medinipur district under the state of West Bengal preserves a rich source of medicinal plants. . In this district having much diversity of the forest flora and tribal communities like Santal, Lodha, Munda, Oraon etc. This zone maximum surrounded by the Saal (*Shorea robusta* Linn.) forest due to availability of the other plants. Normally the tribal people used the plants in their daily day life such as foods, fiber, fuel, cloths, shelter and for the treatment of various human ailments. Health system based on knowledge and availability of plants with medicinal properties are part of the ancient wisdom and culture of India. Few works on tribal knowledge system about the use of medicinal plants in this area has been done[3-5]. Prain's Bengal[6] Plants in 1903 convered present Bangladesh and Chotonagpur of Bihar and Haine's Botany of Bihar and Orissa in 1921 were perhaps, the first and only acount of the flora. There are some works on vegetation and ecology but they are not ethnomedicinally and also economically significant. Few works on medicinal plants has been done in this area prior to the author's own work[7]. The present paper is to focus about medicinal plants species which is less known and rare and their uses by the tribal communities in this district and also put on light about their conservation in respect of their sustainable use in near feature.

Material and Methods

Present work is based on extensive field survey in the dry deciduous forest areas of Paschim Medinipur district (Fig. 1-2) and to gathering knowledge from different ethnic communities like Santals Lodhas, Mundas and Oraons etc. about various traditional utilities of medicinal plants. Extensive field survey and plant collection will be under taken from remote areas in this district during July- 2007 to Aug-2011. The different surveying zone of this district are (1) Jhargram: - 22º26'59" N latitude and 87º00'4" E

longitude (2) Belpahari: - 22º41'10" N latitude and 86º36'56" E longitude (3) Kankrajhore forest: – 22º42'13" N latitude and 86º36'24" E longitude (4) Chilkigarh: - 22º27'11" N latitude and 86º53'02" E longitude (5) Sutan forest: - 22º53'02" N latitude and 86º47'06" E longitude (6) Amlachati: - 22º22'36" N latitude and 87º02'33" E longitude. (7) Pingla: 22˚16'1" N latitude and 87˚37'36" E longitude (8) Sabang: 22˚8'15" N Latitude and 87˚38'5" E Longitude.

The information was further verified by cross checking from other knowledgeable person of the study area. The plant specimens were identified with the help of flora or standard literature [8-11] and the identification were further confirmed in the herbarium at the Botanical Survey of India, Sibpur, Howrah. The voucher plant specimens are deposited in the Botany department of Vidyasagar University, India.

Results and Discussion

During this survey about 21 plant species (Fig. 3-23) belonging to 18 families (10 climbers, 6 trees, 3 shrubs and 2 herbs) were identified and tabulated with scientific name, vernacular name, family, habits, medicinal parts used, local medicinal uses and current status in Table 1. These plant species effective for various common human ailments. Among all the species we found 6 plants species becoming endangered and rest of the plants consider as vulnerable, less common, near threatened. The study reveals that tribal people used the plant parts like root, leaves, bark, flower and fruits for treatment of their various common diseases. The parts of these plants could be used alone or in combination with other herbal materials in the fresh or dried forms. The local or tribal people of this area follow the mode of application of medicinal herbs by the help of local Vaidyas and Kabiraj or their own experience. The paper focused about the conservation of medicinal plant species which is becoming rare, endangered and encourage the local and ethnic people to protect their traditional system of medicine.

Conclusion

During the last two plant period encouragement on cultivation of medicinal plants was in the program for primary health care. It was estimated that the medicinal plant reserve dropped down to 12-13% in comparison to the time of independence (1947). Medicinal plants usually grow in the forest in different eco-system. Ancient text reveals almost all plants have medicinal value. For our ignorance many herbal drugs and herbs are patented. The list is growing every year. It is essential require that a composite system comprising of preservation, cultivation, utilization runs on sustainable basis. It is high time to creating awareness and proper networking on the medicinal properties of this indigenous plants. Input from various sectors, professions and strata of our society will be necessary to have such stable system in place.

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Fig. 1

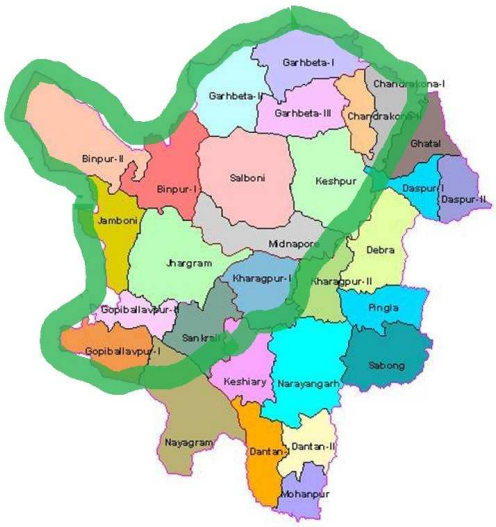

Fig. 2

Fig. 3

Fig. 4

Fig. 1- The map of West Bengal and showing the district of Paschim Medinipur.
Fig. 2- The green belt showing the survey area (Dry deciduous forest areas) in Paschim Medinipur district.
Fig. 3- *Asparagus racemosus* Willd. , Fig. 4- *Aristolochia indica* Linn.

Fig. 5

Fig. 6

Fig. 7

Fig. 8

Fig. 5- *Butea superba* Roxb, Fig. 6- *Canavalia gladiata* (Jacq.) DC.
Fig. 7- *Celastrus paniculatus* Willd. , Fig. 8- *Cryptolepis buchanani* R. Br. ex Roem & Schult.

Fig. 9

Fig. 10

Fig. 11

Fig. 12

Fig. 9- *Dioscorea triphylla* L. Amoen., Fig. 10- *Ehretia laevis Roxb.*
Fig. 11- *Gymnema sylvestre* (Retz) R.Br. ex Schult.
Fig. 12- *Helminthostachys zeylanica* (Linn.) Hook. Syn. *H. dulcis* Faulf

Fig. 13

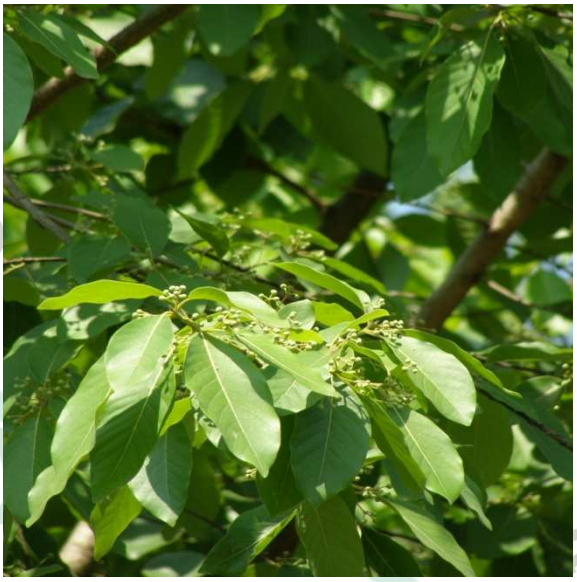

Fig. 14

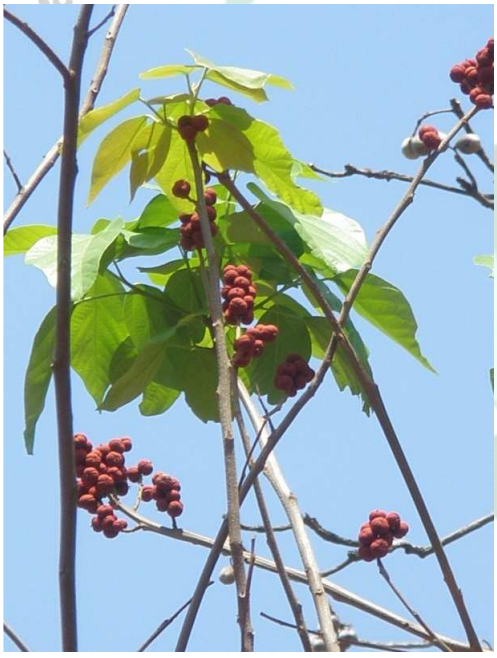

Fig. 15

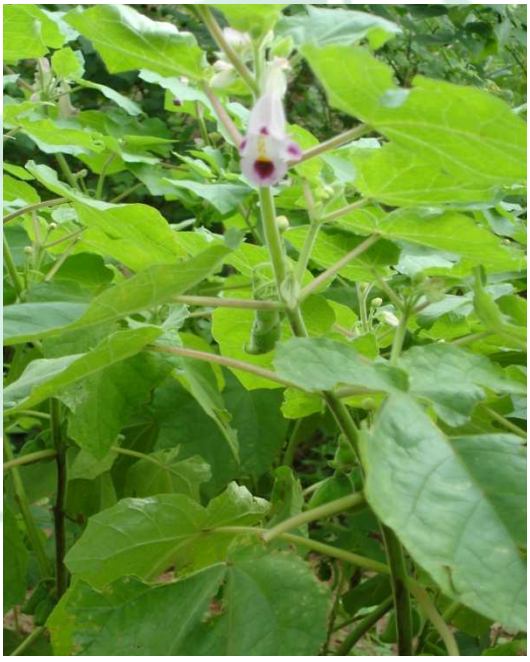

Fig. 16

Fig. 13- *Leea macrophylla* Roxb. ex Hornem.
Fig. 14- *Litsea glutinosa* (Lour.) C.B. Robins. Syn. *L. sebifera* Pers.
Fig. 15- *Mallotus philippensis* Muell.-Arg.
Fig. 16- *Martynia annua* Linn. Syn. *M. diandra* Glox.

Fig. 17

Fig. 18

Fig. 19

Fig. 20

Fig. 17- *Morinda citrifolia* Linn. Syn. *M. bracteata* Roxb.
Fig. 18- *Oroxylum indicum* Vent
Fig. 19- *Rauvolfia serpentina* Benth. ex Kurz, Fig. 20- *Symplocos racemosa* Roxb.

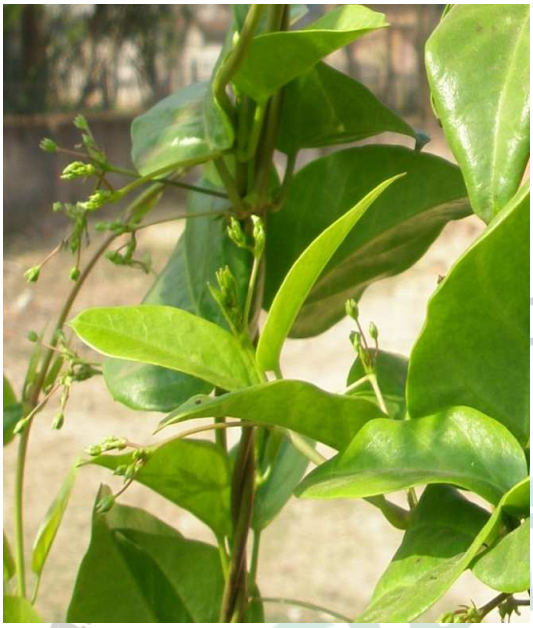

Fig. 21

Fig. 22

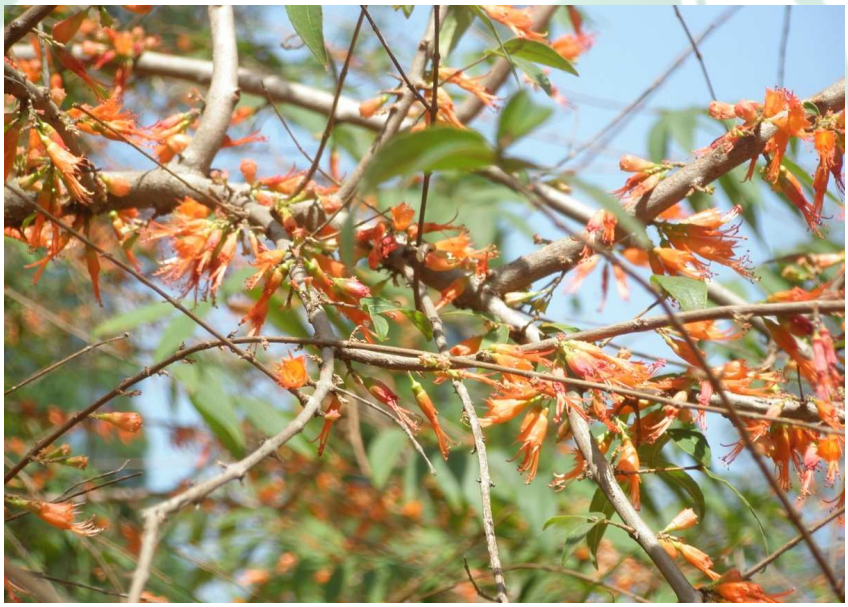

Fig. 23

Fig. 21 ***Tylophora indica*** **(Burm. f.) Merrill,** ***Fig. 22*****- Ventilago denticulata** ***Willd. Syn.*** **V. maderaspatana** ***auct.*** **non. Gaertn.**
Fig. 23**- Woodfordia furticosa** ***Kurz Syn.*** **W. floribunda** ***Salisb.***

Table- 1: Details about rare and endangered medicinal plant resources in Paschim Medinipur district.

Sl. No.	Scientific name	Vernacular name	Family	Habit	Parts used	Ethno medicinal uses	Current status
1.	*Asparagus racemosus* Willd.	Satamul, Satmuli	Asparagaceae	Under shrub	Root Leaves	Blood dysentery, Bloody urine Epilepsy, Filaria, Nocturnal emission, Biliary Colic, Haematemesis, Dryness of mother's milk, Aphomia, Strangury. Night blindness.	EN*
2.	*Aristolochia indica* Linn.	Ishermul, Iswarmul, Bhedi janetet (Santali)	Aristolochiacea	Twining herb (climber)	Root Leaves Entire plant	Intermittent fever, Asthma. Cold & cough of children. Used as an abortifacient.	VU**
3.	*Butea superba* Roxb	Latapalash, Latpalash, Nari murup (Santali)	Papilionaceae (Fabaceae).	Climber	Stem-bark Leaves	Decoction of stem bark applied to children for inducing sleep; stem bark juice used as an antiseptic. Leaf paste used in piles. Flower used as diuretic & astringent.	LC***
4.	*Canavalia gladiata* (Jacq.) DC.Syn. C. gladiata (jacq.) DC. *var erythrosperma* Voigt.	Cock Shim	Papilionaceae (Fabaceae).	Climber	Aerial parts of the plant	Extract of aerial parts used as diuretic.	LC
5.	*Celastrus paniculatus* Willd.	Jayotismoti, Kujri, Malkangni, Kujari (Santali)	Celastraceae	Climbing shrub	Roots Bark	Powder with water taken twice as nervine tonic; paste used to cure constipation. Used as abortifacient.	EN

6.	*Cryptolepis buchanani* R. Br. ex Roem & Schult.	Kankrashringi, Nedashringi, Karilata, Utri dudhi (Santali).	Asclepiadaceae	Climber	Whole plant	Cures rickets of the children, to increase the supply of breast milk.	LC
7.	*Dioscorea triphylla* L. Amoen.	Churka alu.	**Dioscoreaceae**	Climber	Tubers	Possess narcotic properties. Used to cause vomiting; with roots of Apang used to treat indigestion, vomiting; fresh tuber taken as purgative.	LC
8.	*Ehretia laevis Roxb.*	Tamboli, Pushipan.	**Boraginaceae**	Tree	Leaves	Juice of leaves given to cure dysentery, to treat intestinal worms and applied in wounds.	LC
9.	*Gymnema sylvestre* (Retz) R.Br. ex Schult.	Gudmar, Mesh shringi, Meda singi.	**Asclepiadaceae**	Climber	Leaves Root Fruit	Diabetes, enlargement of the liver and spleen, Cardiac stimulant, malarial fever, Eye disease, Entire plant: Diuretic. Piles. Cardiac depression. Dyspepsia.	VU
10.	*Helminthostachys zeylanica* (Linn.) Hook. Syn. *H. dulcis* Faulf	Ekbir	Ophioglossaceae	Herb	Whole plant Rhizome	Used as aperients, intoxicant, anodyne and also useful in the treatment of sciatica. Decoction used to treat impotency, whooping cough, dysentery and malaria.	EN
11.	*Leea macrophylla* Roxb. ex Hornem.	Hastikarnapalash, Hatikan, Dholsamudra, Hatkan (Santali).	Vitaceae	Shrub	Tuberous root	Guinea worm, Ringworm. To allay pain.	LC

12.	*Litsea glutinosa* (Lour.) C.B. Robins. Syn. *L. sebifera* Pers.	Leda, Kukurchita, Garur.	Lauraceae	Tree	Tree Leaves Roots Bark	Acidity. Burning sensation, Bronchitis, Consumption, Fever Diarrhoea, Dysentery.	. EN
13.	*Mallotus philippensis* Muell.-Arg.	Dalguri, Kamala, Sindure	Euphorbiaceae	Tree	Fruits	Anthelmintic, cathartic and styptic; also used for destroying tape worms, externally in treatment of skin diseases like ring worm and scabies.	EN
14.	*Martynia annua* Linn. Syn. *M. diandra* Glox.	Baghnakh, Bag lucha (Santali).	Martyniaceae	Herb	Leaves Fruit	Applied to tuberculosis glands of the neck. Useful in inflammation.	VU
15.	*Morinda citrifolia* Linn. Syn. *M. bracteata* Roxb.	Ach, Surangi, Bartundi, Aal, Chaili (Santali).	**Rubiaceae**	Tree	Leaves Fruit Root	Infantile Diarrhoea, Gout, Wounds, Ulcer, Tonic, Febrifuge, Headache, Rheumatic pain. Spongy gums, Dysentery, Asthma, Lecoderma. Also useful in Cathartic, Rheumatic pain and expectrant.	VU
16.	*Oroxylum indicum* Vent	Shona, Bhaluksukti, Banahata (Santali).	**Bignoniaceae**	Tree	Bark Frui	Diarrhoea, Dysentery, Leucorrhoea, Asthma, Bronchitis, Vomiting. Rheumatism, Gout, Swelling. Heart disease, Piles, Bronchitis.	LC
17.	*Rauvolfia serpentina* Benth. ex Kurz	Sarpagandha	Apocynaceae	Under shrub	Root Leaves	High blood pressure. Rheumatism, Epilepsy, Eczema,	EN

						Snakebite. Used in removal of opacities of the cornea.	
18.	*Symplocos racemosa* Roxb.	Lodh, Lodam (Santali).	**Symplocaceae**	Short tree	Bark	Paste applied to treat rheumatism.	NT****
19.	*Tylophora indica* (Burm. f.) Merrill Syn. *T. asthmatica* W. & A.; *Cynanchum indicum* Burm. f.	Antamul.	Asclepiadaceae	Climbing herb	Leaves Root Bark	Over loaded states of stomach, Dysentery. Catarrh, Used as a substitute of *Ipecacuanha*. Dysentery, Asthma, Bronchits.	NT
20.	***Ventilago denticulata* Willd.** *Syn.* V. maderaspatana *auct. non. Gaertn.;* V. calyculata *Tulsane*	Raktapita	***Rhamnaceae***	Climbing shrub	Root-bark Bark	Carminative, Stomachic, tonic & stimulant. Dyspepsia, Debility, Fever. Itch, Skin disease.	VU
21.	**Woodfordia furticosa *Kurz*** *Syn.* W. floribunda *Salisb.*	Dhatki, Dawa, Dhai, Dhaura, Dhowa, Dhainti, Ichak (Santali).	**Lythraceae**	Large shrub	Flower	Dysentery, Spermatorrhoea, Diarrhoea, Dyspepsia, Menorrhagia.	NT

EN* -Endengered, VU** - Vulnerable, LC*** - Lese common, NT**** - Near threatened