



Ethno-botanical Studies of Medicinal Plants used by Bodo Tribes of Baksa District, BTAD, Assam

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ABSTRACT

To enumerate the uses of plants for medicinal purposes, an ethnobotanical study was carried out in the fringe villages of local inhabitants of Bhuyapara and Bansbari Range of Manas National Park (MNP). During the course of field investigation from June 2011 to December 2011, Bodo traditional medicine practitioners were interviewed for general ailments of 15 diseases. A total of 28 numbers of medicinal plants of 20 different families were recorded for treatment of different ailments

KEYWORDS : Medicinal plants, Bodo, Fringe Villages, Manas National Park.

Introduction

The BTAD consists of four contiguous districts — Kokrajhar, Baksa, Udalguri and Chirang with an area of 27,100 km² (35% of Assam) (Prabhakar 2003). The main Ethnic composition of the fringe villages of the Manas National Park (MNP) is dominated by Bodo, Assamese, Nepalese and Adivasi (Das et al. 2009, 2013). There are 78 fringe villages with a total 8156 household and population of 44,669 in the periphery of the core area of Manas Biosphere Reserve, which is also recognized as Manas National Park, with an average of six members per family (Das et al. 2009, 2013). Manas is the only landscape where pristine Terai land were seen merging with the Bhabar Grassland interspersed with diverse habitats ascending to semi evergreen forest and then to Bhutan Himalayas. There are more than 550 angiosperm in MNP. MNP is also rich in animal diversity.

A good number of valuable accounts have been contributed in studies of medicinal plants during the last two decades from the North Eastern India. Mention may be made for contribution of K.C. Tiwari (1979), Baruah et al. (1984, 1987), Kumar et al. (1987), C.M. Cotton (1996), S.K. Jain (1989, 1997), R.R. Rao (1990, 1996), P. Pushpangadan (1990), Y.P. Kohli (1992), A.D. Khumbongmayum (2005), Dutta et al. (2005), Patiri et al. (2007), Das et al. (2009) and Nath et al. (2011).

It has also been reported that, Boro tribes of Assam is significant for medicinal plant utilization for healing because of its rich traditional knowledge viz. Sharma et al. (2008) and Saikia et al. (2010) and Swargjary et al. (2013).

However, no detailed work has been carried so far on the enumeration and status of medicinal plants in the fringe villages Bhuyapara and Bansbari Range of Manas National Park. Therefore, the present paper focuses on exploration of traditional system of medicine to harness and improve by its appropriate use, establishing the knowledge with the modern technology. This paper also discusses the threats faced for the conservation of traditional practices.

Materials and Methods

For the present study, field trips were conducted from June 2011 to December 2012. The area under investigation of present study is the fringe villages of Bhuyapara and Bansbari Range of Manas National Park in Chirang and Baksa district, Assam, located at 26°43'N 90°56'E with altitude ranging from 40-170 meter above sea level with an average of 85 meter above sea level. The study area map is shown in Figure – 1. The temperature ranges between 6 - 37 °C with highest in the month of July and August. There are three seasons viz. summer (March- May), monsoon (June – September) and winter (December-February). Whereas, October and November is recorded as transition period. The land use pattern of the area is basically agricultural with sparse habitation. The study area is rich in medicinal plants, because

of its geographical location in Terai zone. The medicine men were interviewed in their own houses for use of plant species with local name, mode of preparation, dosage and dietary restriction. They were also asked for availability of medicinal plants in wild, market value, area of collection and the conservation practice followed. The format used for collecting ethno-botanical information during the survey is given in Appendix - 1.

Detailed surveys were conducted in the fringe villages of Bhuyapara and Bansbari Range of MNP and status of utilization of medicinal plants was enumerated. The plant species identified in field and voucher specimens were collected for further confirmation about identification with relevant flora viz. Flora of Assam, Vol. – V by N.L. Bor (1940), Flora of British India by J.D. Hooker (1887), Flora of Assam, Vol. I, II, III & IV by Kanjilal et al. (1934, 1936, 1938). The language of communication was Assamese. Those who do not understand Assamese were communicated through a Bodo translator.

Results and Discussion

During the course of field investigation by interrogating traditional medicine practitioners from June 2011 to December 2011 for general ailments of 15 diseases (Viz. Malaria, rabies, jaundice, worm expectorant, diarrhoea & chronic diarrhoea and dysentery, cold & cough expectorant in adult and major cough and cold of children, gastritis, general body inflammation, over bleeding after menstruation, injured bleeding, bleeding in nose, general weakness after child birth, stomach pain and digestive disorder, teeth decay and tongue disease) a total of 28 numbers of medicinal plants of 20 different families were recorded from the fringe villages of Bhuyapara and Bansbari Range of MNP. Uses of leaf for medicinal purpose were recorded in 15 cases, out of 28 numbers of plant species. Whereas, three cases each for bark, stem and flower; two cases as young apical bud and one case each as whole plant, fruit and gum were recorded to be used during the field investigation. Asteraceae family has recorded the highest number with five species followed by Lamiaceae and Fabaceae with four and two numbers of species respectively. Out of the treatment of 15 common ailments, dietary restriction for rabies is *Phaseolus mungo* and vegetables of climber plants were recommended. During the course of investigation, it was informed by the traditional medicine practitioners that, the medicinal plants collected by them are available in wild in their native area. However, they conserve the germ-plasm of rare medicinal plants in their kitchen garden. As per the information provided by the traditional medicinal practitioner the market value of the traditional medicine is still considerable though modern system of medicine, especially allopathic medicine captures the market. A detail of utilization of medicinal plants is discussed in the following Table - 1.

Threats faced

During the course of study, it was revealed that, traditional practitioners face major threat due to modern system of healing including allopathic medicine. The traditional practitioners also informed that, the local young generations are not interested to carry forward the knowledge of traditional healing system.

Conclusions & Suggestions

The traditional practices of using herbs in the fringe villages of MNP need attention for documentation for long term survival of knowledge. Local youths should be encouraged to carry forward the traditional knowledge system of healing.

Acknowledgement

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Figure- 1- Study Area Map

Table 1: Disease wise uses of herbal formulation by Bodo Tribes in the fringe villages of Bhuyapara Range of MNP

Name of the Disease	Local Name of medicinal plants	Botanical Name of medicinal plants	Family	Parts used	Mode of preparation	Administration and dosage
Malaria	Nim	<i>Azadirachta indica</i> A.Juss., 1830	Meliaceae	Bark	10 grams of barks are put in 100 ml of water for overnight; extract used as medicine.	Half tea cup of the medicine daily before breakfast for seven days.
Rabies	Lwkhana/mwkhwna and Tetlee	<i>Clerodendrum indicum</i> (L.)Kuntze and <i>Piper longum</i> L.	T and Piperaceae	Leaf and seed	5 grams of each is made into paste and used as medicine.	Twice daily for three days and also tied in injured place (bitten by a dog or any other animal) for three days. Medicine is to be changed twice a day.
	Khutura	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Root	Root of the <i>Amaranthus spinosus</i> is seeded ripe banana.	Once daily before breakfast at least for seven days.
Jaundice	Khudwna	<i>Mentha arvensis</i> L.	Lamiaceae	Leaf	20 grams of leaves are put in 200 ml hot water for 6-8 hrs; extract is decanted and used as medicine.	One tea cup of the medicine daily after breakfast for seven days.
	Daosa mukreb	<i>Mimosa pudica</i> L.	Fabaceae	Root	Paste of roots is made used as medicine along with milk of black goat.	5 grams of the medicine, thrice daily before meal for seven days.
Worm expectorant	Palas	<i>Butea monosperma</i> (Lam.) Taub.	Fabaceae	Seed	Seeds are grounded and a tablet is made (approx. 5 gram each) and used as medicine.	Once daily after dinner for three days.
	Bathua	<i>Chenopodium album</i> L.	Chenopodiaceae	Leaf and whole plant	Juice of the leaf or whole plant is extracted without water and used as medicine.	10 ml of extract, two doses in the first week and one single dose in the second week, in empty stomach.
Diarrhoea, Chronic diarrhoea and dysentery	Chatin	<i>Alstonia scholaris</i> L. R. Br.	Apocynaceae	Bark	Dried bark is grounded and powdered for medicine.	5 grams of medicine, once daily before meal for three days.
	Bel	<i>Aegle marmelos</i> (L.) Corr.Serr.	Rutaceae	Fruit	The fruit juice is extracted in water to make drink.	One full glass of medicine, once daily in morning before meal for seven days.
	Palas	<i>Butea monosperma</i> (Lam.) Taub.	Fabaceae	Gum	Gum of the plant is used to cure diarrhoea.	5 ml of gum, once daily in morning before meal for three days.
Cold & cough expectorant in adult and major cough and cold of children	Tetlee	<i>Piper longum</i> L.	Piperaceae	Seed	10 grams of seed is extracted in 100 ml of water for use.	50 ml of medicine, twice daily before meal for three days.
	Mati Galdab	<i>Pygmaeopremna herbacea</i> Roxb.	Verbenaceae	Leaf & stem	Used as vegetable.	Twice daily for three days.
	Vasaka	<i>Justicia adhatoda</i> L.	Acanthaceae	Leaf	Leaves are grounded to extract juice and used along with honey as cough expectorant.	10 ml of medicine, twice daily before meal for three days.
	Sepali	<i>Nyctanthes arbor tristis</i> L.	Oleaceae	Leaf	Leaves are cooked and eaten as vegetables during cough.	During cough for three days.
	Saju	<i>Euphorbia ligularia</i> Roxb. ex Buch.-Ham.	Euphorbiaceae	Soft stem	Soft stem is covered with banana leaf and cooked on wood charcoal. Juice extracted is used after cooling to cure major cough and cold in children.	5 ml of juice, once at night before meal for three days.
Gastritis	Sepali	<i>Nyctanthes arbor tristis</i> L.	Oleaceae	Leaf	Leaves are cooked and eaten as vegetables during gastritis.	As and when gastritis occurs for at least seven days.
General body inflammation	Lwkhna/Mwkhwna	<i>Clerodendrum indicum</i> (L.)Kuntze	Lamiaceae	Root	Root is grounded to extract juice and used as medicine.	5 ml of medicine, twice daily for three to four days during inflammation.
	Taigir	<i>Dillenia pentagyna</i> Roxb.	Dilleniaceae	Bark	10 grams of barks are extracted in 100 ml of water to prepare the medicine.	Half tea cup of the medicine daily in morning before meal for seven days.

Over bleeding after menstruation	Daosa mukreb	<i>Mimosa pudica</i> L.	Fabaceae	Leaf and root	5 grams of both fresh leaf and root is extracted without water and mixed with cow milk and boiled to prepare the medicine.	One tea cup of medicine, once daily after breakfast for two weeks.
Injured bleeding	Gindi	<i>Tagetes erecta</i> L.	Asteraceae	Leaf	Grounded and used as such in injury.	As and when injured.
	Lewa	<i>Mikania micrantha</i> Kunth	Asteraceae	Leaf	Grounded and used as such in injury.	As and when injured.
	Jarmani ban	<i>Eupatorium odoratum</i> Linn.	Asteraceae	Leaf	Grounded and used as such in injury.	As and when injured.
	Duburi ban	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Root and stem	Root and stem are grounded and used in injured place to stop bleeding.	As and when injured.
	Thaso	<i>Colocasia esculenta</i> (L.) Schott	Araceae	Petiole	Petiole is heated over flame and juice is used on injured area.	As and when injured.
Bleeding in nose	Dharamphul	<i>Leucas aspera</i> (Willd.) Link	Lamiaceae	Fresh flower	10 grams of flower is pasted and extracted in 10 ml of water.	As and when bleeding occurs.
Bleeding after child birth	Bormadari	<i>Ageratum conyzoides</i> L.	Asteraceae	Leaf	Leaf is grounded and used as such to stop bleeding.	After child birth to stop bleeding.
Stomach pain and digestive disorder	Mati Galdab	<i>Pygmaepremna herbacea</i> Roxb.	Verbenaceae	Leaf & stem	Used as vegetable.	Twice daily for three days.
	Chera teta	<i>Swertia chirata</i> (Wall.) C. B. Clarke	Gentianaceae	Leaf	50 grams of leaf is pasted and extracted in 50 ml of water.	50 ml of medicine, at the time of pain.
	Lwkhana/mwkhwna	<i>Clerodendrum viscosum</i> Vent.	Lamiaceae	Young apical bud	50 grams of young apical bud is pasted and extracted in 50 ml water to prepare the medicine.	50 ml of medicine, at the time of pain.
	Samfram	<i>Psidium guajava</i> L.	Myrtaceae	Young apical bud	25 grams young apical bud is extracted in 25 ml of water to prepare medicine.	25 ml of the medicine, at the time of pain continuing at least for three days.
	Bor manimuni	<i>Centella asiatica</i> (L.) Urban	Apiaceae	Leaf	Leaf juice extracted without water to cure digestive disorder.	50 ml of medicine, once daily in empty bowel at least three days.
Teeth decay	Kunthai gwkha	<i>Solanum ferox</i> Linn.	Solanaceae	Flower and seed	4-5 numbers of dried flowers or seeds are kept in mouth for half an hour.	Once daily during teeth decay, continuing at least for 7 days.
Tongue disease	Jari	<i>Spilanthes paniculata</i> Wall. ex DC.	Asteraceae	Flower	5 numbers of flowers is eaten raw.	Once daily after meal, continuing at least for 7 days

Photographs



Interview with Mr. Tiken Basumatary (Local medicine practitioner)



Alstonia scholaris



Butea monosperma



Interview with Ms. Maheswari Basumatary (Local medicine practitioner)



Amaranthus spinosus



Dillenia pentagyna



Euphorbia ligularia



Leucas aspera



Justicia adhatoda



Piper longum

Appendix 1. Format used for surveethnobotanical plants and their uses.

1. Survey No. _____
2. Date:
3. Site Location:
4. Site Habitat:
5. Name of the Respondent:
6. Age:
7. Gender:
8. Occupation:
9. Native Place of Respondent:
10. Ethnobotanical Uses of Plants:
11. Local Name of the Plant:
12. Botanical of the Plant:
13. Family:
14. Parts Used:
15. Mode of Preparation:
16. Availability of medicinal plants in wild:
17. Market value:
18. Area of collection:
19. Conservation practice followed:
20. Any other Information:

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