



Traditional Ethnomedical Practices: A study of the Plant-Based Medicine among the Bodo tribes of Assam

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Abstract

The Bodo community of Assam have a treasure of indigenous ethnomedicinal knowledge which they have gathered through generations of interaction with natural environment. This paper examines traditional plant remedies, therapeutic practices, traditional healers, changing health seeking behaviour and challenges to knowledge transmission. Data were collected through discussions with traditional healers, village headmen, elders and knowledgeable community members based on secondary sources, ethnobotanical literatures and field study conducted since 2023 in Bodo inhabited portions of Chirang, Baksa and Nalbari districts. The results showed that medicinal plants are still commonly used in the treatment of different illnesses in the form of decoctions, pastes, powders, liquids and topical therapies. The health care in Bodo is an example of medical pluralism, where the herbal and magico-religious treatments are performed together with the modern biological treatment. A survey of 21 communities in Manas Forest Division revealed that 69 per cent of families preferred physicians and 31 per cent sought traditional healers. This information is threatened by deforestation, loss of plants, modernization and poor transfer to the next generation. It needs to be systematically documented, conserved and scientifically validated to assure its preservation.

Keywords: *Ethnomedicine; Ethnomedicinal practices; Indigenous knowledge; Traditional healthcare; Tribal medicine.*

Introduction

Ethnomedicine refers to traditional medical practices based on the knowledge, beliefs, and experiences of indigenous communities. In India, tribal populations rely heavily on natural resources for healthcare. The Bodos have developed a sophisticated system of traditional medicine based on local flora, fauna, and spiritual beliefs. Their healthcare practices are not only therapeutic but also deeply embedded in cultural and religious life. These practices have been transmitted orally across generations and remain vital in rural areas where modern healthcare access is limited

The *Bodos* comprise one of the major and oldest tribal communities of Assam. They are categorized as a plain tribe in the sixth schedule of the Indian Constitution. These early settlers of Assam in northeast India have a population of around two million according to the 2011 census. They are mostly residing in the north bank areas of river. Brahmaputra along the southern foothills of Bhutan and Arunachal Pradesh, where a Bodoland Territorial Council (BTC) comprising the districts of Kokrajhar, Chirang, Baksa and Udalguri was formed in 2003. The Bodos are said to possess a plethora of ethnomedicinal knowledge which are passed down from their ancestors.

The ethnomedical practices of indigenous communities, rooted in traditional knowledge and cultural beliefs, encompass various approaches such as the use of medicinal plants, rituals and holistic healing methods ([1], Rodríguez-Zúñiga, 2023, [2]). These practices allow the indigenous communities to address some of their health and wellness needs. In this way traditional medicine forms a core part of the customs and languages of these communities, serving as a vital component of their cultural identity and heritage (Rodríguez-Zúñiga,

2023, [3]). This integration of cultural heritage into health practices highlights the importance of preserving and understanding these traditions in the context of modern healthcare.

Large sections of the Bodo tribe are economically under-developed and reside in relatively remote areas where medical facilities and other basic social amenities are not available. They are, therefore, heavily dependent on their traditional ethnic knowledge of using wild resources for food, medicine and other purposes. Several studies have been conducted on the ethnomedicine of Bodo communities inhabiting different areas of Assam [4], [5], [6], [7], [8]. However, it has been shown that in spite of similarities in overall plant use, considerable differences in the use of plants of medicinal and ritualistic use could exist even among communities living in contiguous areas [9].

Materials and Method

The study is based on secondary data from ethnobotanical surveys, journal articles, and field-based research conducted in the districts of Chirang and Baksa (Bodoland Territorial Area Districts (BTAD)) and Nalbari district of Assam. These studies typically involve interviews with local healers, elders, and community members to document traditional knowledge.

Field trips were being conducted since 2023 in villages like Rangijhora, Khungkrajhora, Hahdali, Ulubari, Natkuchi, Amteka and many as such to gather information about the ethnomedicinal practices of the Bodos of this area. Traditional healers, village headmen and knowledgeable elderly persons belonging to the Bodo community from different villagers were selected on the basis of their reputation of possessing considerable knowledge in traditional medicine. Information on the local names of plants, use of plant parts, and procedure for use, etc. were collected from these respondents. Plant species were collected along with local traditional practitioners and knowledgeable persons from wild habitats and home gardens, and their uses were recorded. Identification of plant species were done through review literature viz. [4], [5], [6], [7], [8]. and with the help of experts from the Department of Botany, Madhab Choudhury College, Barpeta, Assam.

Result and Discussions

Ethnomedical Knowledge of the Bodo Tribe: Plant-based Medicine:

Plants form the backbone of Bodo ethnomedicine. The community uses a wide variety of herbs, shrubs, and trees to treat diseases. The Bodos have documented around 52 plant species (Table-1) for food and medicinal use. Around 44 plant species are specifically used for treating jaundice in Chirang, Baksa and Udalguri districts. Plants such as *Hydrocotyle asiatica*, *Andrographis paniculata*, and *Phyllanthus fraternus* are widely used due to high therapeutic value. These plants are processed and administered in diverse medicinal forms, including: Decoctions, Poultices or pastes, Powdered preparations, Fermented extract. The selection of plants is often based on empirical knowledge accumulated over generations.

Local dependence on medicinal plants:

The term “dependence”, alternatively expressed as “reliance”, refers to the use of plant-derived remedies for the management of health conditions and is qualitatively assessed. People throughout these districts, not just those in forest areas, *depend largely* on medicinal plants for primary healthcare and have considerable knowledge of plant species and their uses. This is supported by two ethnobotanical works: *Ethno-Botany of the Bodos* and *Boroni Muli Bifang Laifang*. Together, these sources show that around 50 plant species have been used by the Bodos since ancient times. This information is used as baseline data for the study. There are many more plants which are left out in this paper due to ongoing work going on.

Traditional perceptions of disease:

Among the Bodo community, ailments are categorized into two types: natural and supernatural. These are believed to require different treatment approaches. Natural ailments are thought to have identifiable causes and can be cured through modern or traditional medicine. Conversely, supernatural ailments are believed to result from divine displeasure, evil spirits, or witchcraft, and cannot be treated through conventional medical systems, necessitating ritual-based healing practices.

Traditional healing practices of the Bodos:

Most inhabitants of forest regions depend largely on plant-based traditional medicine for their primary healthcare needs. This knowledge has been accumulated over generations through empirical methods. In almost every village, there is a knowledgeable individual—referred to as an “oja”—who specializes in the use of medicinal plants for healing. These traditional healers possess advanced skills in preparing herbal remedies. While households commonly use medicinal plants as a first line of treatment for minor ailments, ojas are consulted for serious or rare conditions. The widespread use of such practices is supported by their cultural acceptance and local accessibility.

Healthcare practices based on indigenous beliefs:

In accordance with the aforementioned beliefs, the Bodo people adopt two primary forms of treatment for addressing health problems. The health problems are generally initially addressed by the use of traditional medicinal practices and also by magico-religious practices. These practices are carried out by different types of Ojah and Deori.

Traditional healers, known as *ojahs*, can be broadly classified into two categories: *simple ojahs (mulijahs)* and *spiritual healers (mwdai ojahs)*. Simple *ojahs* possess knowledge limited to the use and application of medicinal plants, whereas spiritual healers are regarded as more powerful practitioners who, in addition to herbal knowledge, are believed to counteract malevolent forces through ritualistic chanting and spiritual intervention.

If all forms of treatment namely self-care, intervention by traditional healers, and modern medical approaches prove ineffective, the illness is perceived as being caused either by the displeasure of a family deity or by malevolent spiritual forces associated with witchcraft. In such cases, treatment is undertaken by the second category of *ojahs* (spiritual healer). The process typically begins with the worship of the family deity, seeking forgiveness for any transgressions and protection from harmful external forces. If required, additional deities are invoked to support the primary deity. Should the condition persist, further rituals are performed to expel evil spirits or counteract witchcraft with the assistance of a spiritual *ojahs*. It is important to note that such beliefs in witchcraft have, at times, resulted in violent actions against innocent individuals.

Scope of ethnomedicinal treatment:

The application of ethnomedicine among tribal communities extends across a diverse range of health conditions. While commonly used for everyday ailments such as respiratory issues, headaches, and body pain, it is also employed in the treatment of chronic and potentially fatal diseases like malaria and jaundice. The remedies are low-cost and easily accessible, making them highly relevant in remote regions. This demonstrates the comprehensive nature of indigenous healthcare systems. The following are key diseases managed through plant-based therapies:

Table 1. Check list of medicinal plants used by Bodo tribes of Assam.

Sl. No.	Scientific Name	Local Name (Bodo)	Part Used	Mode of Preparation	Ailment Treated	Mode of use
1	<i>Ocimum tenuiflorum</i> L.	Thulungsi	Root	Root paste	Diabetes	Oral
2	<i>Azadirachta indica</i> A. Juss.	Neem	Root	Root ground into preparation	Tapeworm infection	Oral
3	<i>Centella asiatica</i> (L.) Urb.	Mani-muni	Root	Ground root	Skin/leprosy-related condition	External
4	<i>Clerodendrum infortunatum</i> L.	Mwkwna	Root	Ground root	Swelling	External

Sl. No.	Scientific Name	Local Name (Bodo)	Part Used	Mode of Preparation	Ailment Treated	Mode of use
5	<i>Coleus scutellarioides</i> (L.) Benth.	Orkhi Bifaang	Root	Ground root	Allergy, blood clot, urinary problems	External
6	<i>Colocasia esculenta</i> (L.) Schott	Taso	Rhizome	Cooked	Ear pain	Oral
7	<i>Curcuma amada</i> Roxb.	Thaijou-haijeng	Rhizome	Consumed/paste	Dysentery; swelling	Oral/external
8	<i>Curcuma aromatica</i> Salisb.	Katri	Rhizome	Extract	Dysentery	Oral
9	<i>Cyperus rotundus</i> L.	Kaya hagra	Rhizome	Ground	Headache, dysentery, childhood sickness	Oral
10	<i>Gomphostemma ovatum</i> Wall. ex Benth.	Oma ki	Root	Root placed in cocoon and worn	Jaundice	External/traditional
11	<i>Hellenia speciosa</i>	Daola Khungur	Rhizome	Boiled juice	Jaundice	Oral
12	<i>Houttuynia cordata</i> Thunb.	Maisundri	Root	Root paste	Stomach problems	Oral
13	<i>Kaempferia galanga</i> L.	Adi Deega / Sompera	Rhizome	Crushed	Distress/sickness in babies	External
14	<i>Kaempferia rotunda</i> L.	Haijeng gwswn	Rhizome	Tied/worn as neckpiece	Allergy	Traditional external
15	<i>Mimosa pudica</i> L.	Laaji bifaang/ Daosa-mwkreb	Root	Root paste	Gum problems	External
16	<i>Morinda angustifolia</i> Roxb.	Ekhla Bifaang/ Asoo	Root	Ground	Jaundice	Oral
17	<i>Murraya koenigii</i> (L.) Spreng.	Nwrsing	Root	Root paste	Skin eruptions, poisonous insect bites	External
18	<i>Alpinia nigra</i> (Gaertn.) Burt	Tharai	Rhizome	Used raw	Respiratory problems	Oral
19	<i>Rauvolfia serpentina</i> (L.) Benth. ex Kurz	Nilikot	Root	Root paste	Stomach pain	External
20	<i>Ricinus communis</i> L.	Endi	Root	Root paste	Gum problems	External
21	<i>Senna occidentalis</i> (L.) Link	Soleng	Root	Ground root paste	Whooping cough	Oral
22	<i>Senna occidentalis</i> (L.) Link	Soleng	Leaves	Cooking Soup	Uneasiness / Jaundice/ Loss of Appetite	Oral
23	<i>Stephania japonica</i> (Thunb.) Miers	Phenel kuga	Root	Root preparation with other plants	Jaundice	Traditional external

Sl. No.	Scientific Name	Local Name (Bodo)	Part Used	Mode of Preparation	Ailment Treated	Mode of use
24	<i>Zingiber officinale</i> Roscoe	Haijeng	Rhizome	Used raw	Cough/infections	Oral
25	<i>Acmella ciliata</i> (Kunth) Cass.	Jari geder	Flower, leaf	Paste/vegetable	Fever, canker sore	Oral/external
26	<i>Acmella oleracea</i> (L.) R.K.Jansen	Jari	Twig, Leaves	Cooked as vegetable	Cold, fever	Oral
27	<i>Adhatoda vasica</i> Nees	Barsigi guphur	Leaf, root	Juice/decoction	Asthma, respiratory ailments	Oral
28	<i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees	Sirota	Leaf	Fresh juice	Worm infestation	Oral
29	<i>Annona reticulata</i> L.	Balam phithai	Fruit	Fruit preparation	Diabetes	Oral
30	<i>Bacopa monnieri</i> (L.) Wettst.	Brahmi bilai	Leaf	Fresh preparation	Asthma, epilepsy, anaemia, nervousness	Oral
31	<i>Calotropis gigantea</i> (L.) Dryand.	Agwnaatha/Agandobang bifhang	Leaf, root	Paste/juice	Swelling, dog bite	External/oral
32	<i>Clerodendrum viscosum</i> L.	Mwkhna Jwla/Dhapat tita	Leaf, root	Juice/extract	Fever, cough, dysentery, stomach pain, skin problems	Oral/external
33	<i>Centipeda minima</i> (L.) A.Braun & Asch.	Hasiu biphang	Leaf	Inhalation	Cold	Inhalation
34	<i>Chenopodium album</i> L.	Buthua	Whole plant	Fresh juice	Intestinal worms	Oral
35	<i>Christella parasitica</i> (L.) H.Lév.	Sal daukhumi	Frond	Frond paste	Loss of sensation	External
36	<i>Euphorbia neriifolia</i> L.	Siju	Leaf	Juice	Cough	Oral
37	<i>Leucas aspera</i> (Willd.) Link	Doron / Dhamkhu	Leaf, flower	Juice	Sinusitis, cold, Blood clot in nose	Nasal
38	<i>Ocimum gratissimum</i> L.	Ram thlungsi	Leaf	Decoction	Fever/malaria-related ailments	Oral
39	<i>Phlogacanthus thyrsiformis</i> (Roxb. ex Hardw.) Mabb.	Basigi/ Baheka tita	Flower, leaf	Fried flower/leaf juice	Gastric/stomach problems	Oral
40	<i>Psidium guajava</i> L.	Somfraang	Leaf	Leaf juice	Intestinal/bowel problems	Oral
41	<i>Tinospora cordifolia</i> (Willd.) Hook.f. & Thomson	Amarlota/Suguni-lota	Root	Juice	Diabetes	Oral

Sl. No.	Scientific Name	Local Name (Bodo)	Part Used	Mode of Preparation	Ailment Treated	Mode of use
42	<i>Solanum xanthocarpum</i> Schrad. & Wendl.	Ambu fanthao	Leaf, fruit	Traditional preparation	Asthma, diabetes	Oral
43	<i>Asparagus racemosus</i> Willd.	Satavari/ Satmul	Root, leaf	Juice	Fever/malarial ailments	Oral
44	<i>Impatiens balsamina</i> L.	Dwl funga	Leaf	Crushed with water	Fever/malarial ailments	Oral
45	<i>Flemingia strobilifera</i> (L.) Aiton	Sring Sring Bifaang	Leaf	Pounded in water	Malarial ailments	Oral
46	<i>Cucumis sativus</i> L.	Thaisum/ Thaibeng	Fruit epidermis	Soaked in water; extract	Fever/malarial ailments	Oral
47	<i>Spilanthes acmella</i> (L.) L.	Piraja	Flower, leaf	Infusion	Malarial ailments	Oral
48	<i>Rubus rugosus</i> Sm.	Jetuli poka	Leaf	Infusion	Malarial ailments	Oral
49	<i>Musa balbisiana</i> Colla	Athia Thalir	Fruit	Traditional preparation	Various ailments	Oral
50	<i>Clerodendrum celebrioides</i>	Nefu Bifang	Leaf	Crush and drink	High Pressure	Oral
51	<i>Paederia foetida</i>	Khapi Bendwng	Leaf	Soup	Stomach Ailment	Oral
52	<i>Rauvolfia serpentina</i>	Karekha	Leaf	Juice	Gastric pain	Oral

Preparation and administration of ethnomedicines:

The Bodo community employs diverse methods for the preparation and administration of traditional medicines, depending on the nature and characteristics of the illness. In certain cases, remedies are derived from a single plant or specific parts such as roots, bark, or tender shoots. In other instances, combinations of different plant parts from multiple species are utilized to enhance therapeutic effectiveness. Such formulations are believed to possess greater curative potential. For example, the leaves of *Paederia foetida* (Khapi Bendwng) are used in the treatment of dysentery, whereas gastric pain is treated using a combination of leaves, roots, and tender shoots of *Swertia chirata* (Mwisundri), *Rauvolfia serpentina* (Karekha), and *Asclepias curassavica* (Bhado gwkha), respectively.

Forms of traditional medicine administration

Traditional medicines are applied in various ways:

- Oral administration – in the form of pastes, liquids, or pills.
- Topical application – as balms or liniments.
- Plaster application – applied externally to the affected area.
- Plaster application on the fontanel – applied externally to the soft spot of the infants.

This latter method is widely practiced among the local population, who believe it is particularly effective in eliminating the residual effects of a disease.

Among the various plant parts, leaves, aerial shoots, fruits, bark, flowers, rhizomes, roots, tubers, rinds, seeds, and bulbs are commonly utilized for medicinal purposes, with leaves being the most frequently employed. Herbaceous medicinal plants have experienced the greatest depletion, and most extinct or rare species are forest-dwelling. Consequently, if deforestation persists, the diversity and availability of medicinal

plants will continue to decline. Moreover, certain species are restricted to specific ecological niches, meaning that attempts to preserve all medicinal plants outside their natural forest habitat may prove ineffective, as species adapted to forest environments are unlikely to survive in non-forest conditions.

Conclusion

This study details the traditional ethnomedicinal practices of the Bodo community of Assam with special attention on the plant-based remedies and associated indigenous knowledge. This study is centered on uses of medicinal plants by Bodo households and traditional healers such as Oja/Ojah, Deori and Kabiraj through secondary literature, field observations and interactions in Bodo villages of Chirang, Baksa and Nalbari with more fieldwork from 2023 onward. The results indicated that medicinal plants still play a significant role in Bodo traditional health care. The study documents some 50 species of plants utilized for food, medicinal and other ethnobotanical purposes, while the available literature cites nearly 239 species. Leaves, roots, bark, fruits, flowers and seeds are used to make decoctions, pastes, powders and fermented extracts to treat various ailments.

Bodo ideas of sickness are both natural and supernatural, which have given rise to the co-existence of herbal, ceremonial and magico-religious healing traditions. Traditional healers still play a vital role, particularly in rural and forested areas where access to modern health care facilities is limited. However, health-seeking behaviours have rapidly evolved to medical pluralism where consumers combine traditional treatments and modern treatment. According to the survey, 69% of the respondent families opted to consult physicians and 31% traditional healers. Yet, conventional medicine is valued for its affordability, accessibility, cultural acceptability and apparent effectiveness.

Deforestation, scarcity of medicinal plants, modernization and diminishing intergenerational transmission are identified as the main risks to Bodo ethnomedicinal knowledge. Older people in the community have far more knowledge than the younger generations which shows there is a tight link between loss of biodiversity and loss of knowledge. Thus, the study stresses on systematic documenting, conservation and scientific validation of Bodo ethnomedicinal practices along with a culturally appropriate interaction between the indigenous and modern healthcare systems.

Declaration

The author has no conflicts of interest.

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