

## Ethnobiological practices of different ethnic groups in Karbi Anglong, Assam

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### ABSTRACT

Traditional medicine is a global practice and depends on locally available natural resources and indigenous knowledge. Plants and animals both their product have been used since time immemorial due to their close association with nature in the preparation of traditional remedies in various culture. In the present study aims to explore and document the rich ethnozological practices of different ethnic groups in the east Karbi Anglong district of the state Assam. Karbi Anglong region is characterized by rich diversity of plants and animals as well as rich diversity of heritage in traditional medicine practice. During the study 34 plant varieties and 46 different varieties of species used to treat different ailments including asthma, jaundice, chicken pox, pneumonia, anemia, etc. were recorded. The study showed that the use of traditional medicines are still popular in rural areas which may depict a scenario of their strong belief on their formulations or may be due to inaccessibility of health care facilities in availing modern medicines. It is evident that the ethnozoological information regarding the therapeutic uses of different plant and animals in traditional medicine is fading and there is an urgent need for its documentation before much of it is completely lost.

**Keywords:** Traditional medicine, indigenous, immemorial, ethnozological, heritage, ailments

### INTRODUCTION

India is renowned for its rich heritage of herbal medicinal knowledge, which has been preserved and practiced for centuries. The indigenous and tribal populations, particularly those residing in remote forested areas, continue to rely heavily on traditional systems of medicine. The Northeastern region of India is especially notable as a vast reservoir of diverse plant species. This region, home to more than 200 tribes and various other communities, plays a critical role in the protection of forests and sacred groves.

Karbi Anglong, located in this northeastern region, is characterized by a unique interplay of ecological and cultural elements that distinguish the hills from the plains. Despite these contrasts, there are significant continuities between the two landscapes, as evidenced by historical and modern records that highlight the interdependence and interactions between the hill and plain areas. The twin hill district of Karbi Anglong is among the most biodiverse regions in India, hosting a wide array of plant and animal life.

This region is a cultural mosaic where numerous tribes coexist, each speaking its own language and contributing to the vibrant ethnic tapestry of the area. The diversity of cultures and races has shaped a rich folk tradition that remains deeply ingrained in the daily lives of its people. While some tribal medicinal practices have been incorporated into organized systems of medicine, a significant portion of this knowledge remains endemic to specific tribal communities across India.

The tribal communities possess remarkable knowledge of effective medicinal remedies derived from their experiences, often guarded as family secrets and passed down orally through generations. This highlights the immense potential of ethnobiological studies in Karbi Anglong, which can serve as a strategic avenue for the discovery of novel and highly beneficial chemical compounds. The proper identification and conservation of these resources demand careful and immediate attention.

A detailed and systematic ethnobiological study of this region is essential, as it would offer valuable insights into the traditional knowledge surrounding medicinal plants and the use of various animal species as therapeutic resources. Although this particular study focuses on the Karbi Anglong district of Assam, it underscores the broader relevance of such research.

Over the past four to five decades, numerous research institutions, universities, and government departments have conducted studies on the utilization of plant resources by various tribes and communities in the region. These efforts have culminated in the publication of hundreds of research papers and several books.

This present study seeks to review the existing body of literature on plant-based traditional knowledge from this region. It also aims to identify gaps in the current research and explore opportunities for further ethnobiological investigations. By doing so, it emphasizes the need to promote and preserve the traditional medicinal practices of the region while uncovering new avenues for scientific and cultural advancements.

Karbi Anglong is situated in middle part of Assam mostly covered by green forest and hilly terrain. Geographically the district is bordered by Golaghat district in the east, Nagaon district in the north, Hojai district in the west and Dima Hasou district in the south. Geographically, the study 26.1861° N, latitude and 93.5813° E longitude. According to the 2011 Census, the District has an estimated total population of 9, 56,313. Altitude of the study area ranges from 600 m to 900 m above sea level.

Bio-resources including both plants and animals have been used in indigenous healing practices by different ethnic communities since ancient times. The traditional medicinal knowledge constitutes an important alternative to modern health care system. Any indigenous communities are dependent on natural resources for their day-to-day requirements and their way of living is greatly influenced by the availability of the nearby forest resources. (Borah, 2017) Revealed that plants and animals are considered as an important bio-resource which has been used in indigenous healing practices by different tribal groups since ancient times. The proper documentation and evaluation of such indigenous medicinal knowledge provides extra benefit to human health by making new drugs for the treatment of various diseases. For proper scientific validation of the drugs derived from plants and animals used by the ethnic communities, scientific analysis might be carried out which will also facilitate checking of the efficiency and safety of these drugs (Wang, 2023).

Ethnobiological studies provide knowledge about nature along with biological resources, though such studies are mainly focused on the evaluation of the traditional medicinal information and its environmental impacts, resource management and sustainable development (Alves, 2015). According to World Health Organization (WHO) report (1993) more than half of the world's modern drugs are dependent on biological resources and out of 252 drugs that have been selected by WHO as essential to human health, 8.7% comes from animal source (Alves, 2015). Hence it is fair to say that plants and animals have been playing a significant role in healing processes, folk rituals and religious practices of people from all the seven continents.

Since ancient times, great works have been done in India in the field of traditional knowledge. Such works have been documented in texts like Ayurveda and Charaka Samhita. About 15–20% of the Ayurvedic medicines are based on animal derived substances. Additionally, a lot of information has been passed down to present times through folklore as different customs have become ingrained in the traditions of diverse tribes. Various animal products and by-products are still used by people for curing various diseases. But as an impact of modernization, this traditional knowledge is eroding at a fast rate (Mahawar, 2008). Thus, documentation of such knowledge is necessary in order to conserve the traditional beliefs beneficial for humankind.

In Karbi Anglong district, many communities like Adivasi, Bodo, Dimas-Kachari, Karbi, Kuki, Lalung, Mishng, Rabha, and Tiwa use different types of traditional medicinal techniques to treat diseases. The indigenous healing techniques obtained from the forest products (especially plants and animals); provide ample benefits to the local people. There are few studies from the district which have attempted to document the rich traditional knowledge of the two states. But still there is a lot of research gap and more systematic scientific studies need to be undertaken in both the states. Therefore, this short term comparative study has been intended to learn about the traditional healing techniques of floral and faunal applications by ethnic people of Karbi Anglong to treat various diseases.

## METHOD AND MATERIALS

**1. Study site:** The study was conducted at Karbi Anglong district of state Assam. Karbi Anglong is bordered by Golaghat district in the east, Nagaon district in the north, Hojai district in the west and Dima hasou district in the south. Geographically, the study 26.1861° N, latitude and 93.5813° E longitude. According to the 2011 Census, the District has an estimated total population of 9, 56,313. Altitude of the study area ranges from 600 m to 900 m above sea level, majority of residents of Karbi Anglong district depend on rain fed subsistence agriculture and some are traditional hunter and gatherers.

**2. Method:** cross-sectional descriptive method was used as it is useful in establishing the nature of existing situations and an appropriate technique to collect data on a large number of variables. Key informants from local traditional healers and spiritual intellectuals were selected purposively from the district. The selection of respondents was based on their experience and recognition as knowledgeable members concerning traditional zootherapeutic.

**3. Data collection:** The ethno medicinal data about the use of animals and their products in traditional medicine were collected using the participatory rural appraisal method (where the informants also sometimes become investigators themselves), semi structured questionnaires interview complemented by informal conversations, informal meetings, and open and group discussions. Before commencement of the survey, researchers familiarized themselves to the local people by explaining the nature and objectives of the research and asked the respondents for permission to respect intellectual property rights [28]. During the survey, the following ethnozological information was collected: the local name of the animal used for medicinal purpose, parts used, ingredients added, ailments treated, method of preparation, mode of administration, dosage and duration of treatment, and the mechanisms of knowledge transfer concerning each of the traditional medicines

**RESULT AND DISCUSSION****Table 1: Details of different plants used in traditional medicine**

PLANTS GROUP	COMMON NAME	SCIENTIFIC NAME	IUCN	PARTS USED	AILMENTS TREATED	PREPARATION	MODE OF ADMINISTRATION
Acanthaceae	Malabar nut	<i>Adhatoda vasica</i>	LC	Flowers & Leaves	Nose bleeding, dysentery and blood vomiting	Fresh flowers and leaves are boiled in water and decoction is prepared which is consumed once in a day	Oral
Acanthaceae	Philippine violet	<i>Barleria cristata</i>	DD	Aerial parts	Skin infections	Entire plant is crushed, boiled in water and filtered; 2–3 drops of decoction is used against	Oral
Amarthaceae	Pickly chaff flower	<i>Achyranthes aspera</i>	DD	Leaf	Boils	Pills (1–2 g each) are made out of crushed leaves and each pill is applied twice daily on boils till it heals	External
Apiaceae	Indian pennywort	<i>Centella asiatica</i>	LC	Whole	Stomach ache, indigestion and flatulence	Decoction of leaves is used against conjunctivitis and other eye injury; crushed leaves are mixed in a cup of water with a tablespoon of salt and taken once daily	Oral
Apiaceae	Cilantro	<i>Coriandrum sativum</i>	NE	Fruits	Cure stomach ache	Dried fruits are powdered and taken orally to	Oral
Apocynaceae	Blackboard tree	<i>Alstonia scholaris</i>	LC	Bark	Curing asthma	Fresh barks are cut into small pieces and decoction is prepared which is later filtered through a cloth, concentrated and dried in shade; out of this small pills (each of 1–1.5 g) are made, three pills a day (for adults) is the recommend	Oral
Apocynaceae	Bright eyes	<i>Cataranthus roseus</i>	DD	Leaves	Cure nasal bleeding	Leaves are taken directly (about a handful) for diabetes and high blood pressure; 2–3 drops of this extract is poured in the nostril	Oral or External
Apocynaceae	Pinwheel flower	<i>Tabernaemontana divaricata</i>	LC	Latex	Prevent cavity formation	Latex is applied twice daily to	Oral
Araceae	Spotted arum	<i>Arum dioscoridis</i>	DD	Stem	Boils	Stems are crushed and the extract is applied directly to cure	External
Asparagaceae	Shatamull	<i>Asparagus racemosus</i>	EN	Leaves	Stomach ache and urinary disorders	Dried leaves are powdered and are taken orally	Oral
Asteraceae	Billy goat weed	<i>Ageratum conyzoides</i>	LC	Leaves	Cuts and wounds	Crushed leaves are used directly	External
Asteraceae	Bitter vine	<i>Mikania micrantha</i>	LC	Leaves	Diarrhea and dyspepsia	Leaves are crushed; a table-spoon of the extract is taken thrice daily to cure	Oral

Asteraceae	Toothache plant	<i>Spilanthes paniculata</i>	DD	Flowers	Tooth ache and cavity formation	Flowers (ca 200 g) are crushed and applied twice daily to relieve	External
Begoniaceae	East Himalayan Begonia	<i>Begonia roxburghii</i>	DD	Rhizome/Bulb	Infection	It is crushed and applied on the body parts where the thorns are stuck to prevent further infection and allow it to come out by itself	External
Convolvulaceae	Giant dodder	<i>Cuscuta reflexa</i>	DD	Whole	Premature hair fall, greying of hair and control of dandruff	Whole plant parts are crushed and applied on the scalp to prevent	External
Crassulaceae	Cathedral bells	<i>Bryophyllum calycinum</i>	DD	Leaves	Burns and bruises; eye sores, eye pain or eye itching	Leaves are crushed and are applied twice daily	External
Cucuritaceae	Bitter melon	<i>Momordica charantia</i>	NE	Leaf and fruit	Chest pain and other rheumatic pain	Leaves are crushed then taken orally or applied to the injured tissues for curing rabies and are also taken along with other vegetables to get rid from	Oral or External
Fabaceae	Sickle senna	<i>Cassia tora</i>	DD	Leaves, barks & roots	Skin diseases such as ring worms, leprosy	Leaves, barks and roots are applied externally	External
Fabaceae	Winged stalk desmodium	<i>Desmodium triquetrum</i>	NE	Leaf seeds and	Against helminth parasites	Leaves as well as seeds are crushed; pills (ca 1–2 g each) prepared and is used as Vermifuge two pills daily with empty stomach is the recommended dosage	Oral
Mimosaceae	Touch me not	<i>Mimosa pudica</i>	LC	Roots	Curing piles	Fresh roots (ca 500 g) are crushed and soaked in (ca 500 ml) water; 100 ml of the extract is taken twice daily for	Oral
Lamiaceae	East Indian glory bower	<i>Clerodendrum glandulosum</i>	VN	Leaves	Curing diabetes and high blood pressure	Leaves are taken raw or are prepared along with vegetable for	Oral
Lamiaceae	Tulsi	<i>Ocimum sanctum</i>	DD	Leaves	Curing stomach ache and head ache	Leaves (ca 200 g) are crushed and is later filtered through a cloth- 10 ml of the extract is taken twice daily for	External
Malastomtaceae	Malabar malastome	<i>Melastoma malabathricum</i>	LC	Leaves/ Young twigs	Stomach to cure dysentery	A handful of young premature leaves are taken raw twice daily in an empty	Oral
Malvaceae	Asian cotton	<i>Gossypium arboreum</i>	NT	Seeds	To improve memory power	Young and premature seeds are crushed; pills (ca 5–6 g each) are been prepared-one pill a day, preferably with milk is taken in	Oral

						empty stomach	
Malvaceae	Caesar weed	<i>Urena lobata</i>	DD	Leaves	Relieve rheumatic pain and body ache	Decoction of the leaf is taken twice daily to reduce blood pressure; and also is taken before sleep	Oral
Oxalidaceae	Pink wood sorrel	<i>Oxalis corymbosa</i>	DD	Whole	Dyspepsia and jaundice	Entire plant is crushed and the extract is taken thrice daily to counteract	Oral
Phyllanthaceae	Gale of the wind	<i>Phyllanthus niruri</i>	DD	Leaves & roots	Fever	Leaves (ca 500 g) are crushed and are later filtered-20 ml of the extract is taken thrice daily to cure diarrhoea; roots (ca 200 g) are crushed and filtered-20 ml of the extract is taken thrice daily	Oral
Piperaceae	Long pepper	<i>Piper longum</i>	DD	Fruit & Roots	Body ache	Crushed fruit mixed with jaggery and ginger powder is boiled (with 200 ml water) and is taken thrice daily before food for curing malaria; dry roots (500 g) are crushed and taken with tea twice daily	Oral
Plantaginaceae	Broadleaf plantain	<i>Plantago major</i>	LC	Leaves	Ear ache, tooth ache and gum bleeding	An equal proportion of crushed leaves and raw milk (w/v) is mixed and taken in an empty stomach for almost a week	Oral
Polygonaceae	Creeping smartweed	<i>Polygonum chinense</i>	DD	Leaves	Dyspepsia	Leaves are ground and the extract is taken thrice daily to counteract	Oral
Solanaceae	Tobacco	<i>Nicotiana tabacum</i>	LC	Aerial parts	Against skin infections	Entire plant is ground and applied to the infected area thrice daily	Oral
Solanaceae	African egg plant	<i>Solanum indicum</i>	DD	Fruit	High Blood pressure	Dried fruits are boiled; decoction used to prepare pills (ca 10 g each) and is taken twice daily	Oral or External
Zingiberaceae	East Himalayan cardamom	<i>Amomum dealbatum</i>	DD	Roots/ Rhizome	Joint pain	Rhizome or roots are crushed and then fried lightly with mustard oil and is applied	External
Zingiberaceae	Turmeric	<i>Curcuma longa</i>	LC	Rhizome	Counteract dyspepsia	Pills (1–2 g each) are made out of crushed rhizomes and each pill is taken orally before food	Oral

**Table 2: Details of different Animals used in traditional medicine in Assam**

ANIMAL GROUP	COMMON NAME	LOCAL NAME	SCIENTIFIC NAME	IUCN	PARTS USED	ALIMENTS TREATED	PREPARATION	MODE OF ADMINISTRATION
Actinopterygii	Eel	Kuchia	<i>Amphipnouchia</i>	LC	Meat	Premenstrual abdominal pain	Boiled meat is prescribed to eat	Oral
Actinopterygii	Climbing perch	Kawai	<i>Anabas testudineus</i>	LC	Whole fish	Dysmenorrhoeal	Head portion of the fish, Tal tree leaf ( <i>Borsassus flabellifer</i> ) and chilly are boiled together and prescribed to eat	Oral
Actinopterygii	Mottled eel	Nadal bami	<i>Anguilla bengalensis</i>	NT	Fat	Relieve pain	Fat is applied and massage	External
Actinopterygii	Dwarf snakehead	Ok-langso	<i>Channa gachua</i>	LC	Bile	Applied to remove the thorn	When pricked by thorn, bile of the fish is used	External
Actinopterygii	Spotted snakehead	Goroi	<i>Channa punctata</i>	LC	Whole fish	Tuberculosis	The fish is boiled with black pepper and prescribed	Oral
Actinopterygii	Tanky goby	Patimutura	<i>Glossogobius giuris</i>	LC	Flesh	Passing urine while asleep	Cooked and eaten to treat disease	Oral
Actinopterygii	Pangusia labeo	Bholung	<i>Labeo pangusia</i>	NT	Flesh	To regain strength after delivery	Boiled fish is taken regularly	Oral
Actinopterygii	Feather back	Kandhuli	<i>Notopterus notopterus</i>	LC	Whole fish	To treat delivery pain, abdominal pain	The fish is burned and cooked along with ingredient like mustard oil and black pepper and prescribed to eat	Oral
Actinopterygii	Pool barb	puthi	<i>Puntius sp.</i>	LC	Head	Night blindness	Cooked head is taken regularly	Oral
Actinopterygii	Wallago catfish	Barali	<i>Wallago attu</i>	VN	Head	Improve liver function	Boiled head of the fish is taken regularly	Oral
Amphibia	Toad	Bhekuli	<i>Bufo Sp.</i>	DD	Hind legs	Urinary retention, acne	Thigh muscle is cooked and consumed	Oral
Amphibia	Common tree frog	Pat beng	<i>Polypedates leucomystax</i>	LC	Meat	Asthma	Meat is boiled with	Oral



							species like clove, cinnamon, black pepper and prescribed to eat	
Amphibia	Frog	Bhekuli	<i>Rana Sp.</i>	LC	Skin flesh	To treat Wound, tongue blister	Skin oil is used	External
Annelida	Earthworm	Kechu	<i>Lumbricus sp.</i>	LC	Whole body	To treat Gastric arthritis	Dried and turned into pill like form	Oral
Annelida	Earthworm	Kechu	<i>Metaphire houleiti</i>	DD	Whole body	Skin burned	Earthworm is fried and oily substances are applied externally	External
Annelida	Earthworm	Kechu	<i>Pheretima sp.</i>	NE	Whole body	To treat piles	It is crushed and juice is prescribed to drink	Oral
Arachnida	Scorpion	Brishik	<i>Tytius sp.</i>	DD	Whole body	To treat its own sting	Burned and eaten	Oral
Aves	Common Myna	Shalika	<i>Acridotheres tristis</i>	LC	Meat	Diarrhoea	Boiled meat is prescribed to eat	Oral
Aves	Water hen	Dauk	<i>Amaurornis phoenicurus</i>	LC	Whole body	Joints pain	Cooked and consumed	Oral
Aves	Domestic pigeon	Paro	<i>Columba livia</i>	LC	Excreta	Typhoid, toothache	Mixed with rice beer and consumed	Oral
Aves	Crow	Kauri	<i>Corvus sp</i>	LC	Flesh	Paralysis	Cooked and eaten	Oral
Aves	Chicken	Murgi	<i>Gallus domesticus</i>	DD	Meat	Fracture	Meat is crushed, and paste is applied externally in bone	External
Aves	House sparrow	Ghorsirika	<i>Passer domestica</i>	LC	Flesh	Treat Stammering	Cooked and consumed to	Oral
Insecta	Cricket	Uiisirin ga	<i>Acheta sp.</i>	NE	Hind legs	Diuretic	Burn on fire and eaten	Oral
Insecta	Honey bee	Mou	<i>Apis indica</i>	DD	Honey	Cough	Honey is prescribed with the sap of <i>Oscimum sanctum</i> (Tulsi) leaf	Oral
Insecta	Western Honey bee	Mou	<i>Apis mellifera</i>	DD	Honey	Cough, flu, asthma	Raw honey is consumed	Oral
Insecta	Gandhi bug (Rice)	Gandhi puk	<i>Leptocorisa varicornis</i>	DD	Whole body	Fever	Whole insect is boiled and prescribed to	Oral

	bug)						consume	
Insecta	House fly	Makkhi	<i>Musca domestica</i>	NE	Whole body	Treat baldness	Body is roasted and consumed	Oral
Insecta	Green tree ant	Amoli poruwa	<i>Oecophylla smaragdina</i>	NE	Whole body	Sinus, epistaxis	Prescribed to eat raw	Oral
Insecta	Cockroach	Poitasura	<i>Periplaneta americana</i>	NE	Whole body	To treat Asthma	Fried and eaten	Oral
Insecta	Louse	Okoni	<i>Phthiraptera</i>	NE	Whole body	To treat urinary tract obstructions	Eaten in live condition	Oral
Insecta	Grasshopper	Foring	<i>Poecilotheres pictus</i>	NE	Whole insect	To treat Lung infection	Fried and eaten	Oral
Insecta	Slender ant	Mojali poruwa	<i>Tetaponera rufonigra</i>	NE	Whole body	Body ache	Prescribed to eat raw	Oral
Insecta	Hornet	Kodu	<i>Vespa affinis</i>	NE	Whole body	Cancer	It is ground and mixed with water and prescribed to drink	Oral
Mammalia	Humped cattle	Jersey goru	<i>Bos indicus</i>	DD	Milk	Liver problem	Milk and missiri mixed together and prescribed to drink	Oral
Mammalia	Porcupine	Ketela pohu	<i>Hystrix sp.</i>	LC	Intestine	To treat Stomach problems, dysentery	Dried in the sun for several days and turned into powder form	Oral
Mammalia	Monkey	Bandor	<i>Macaca assamensis</i>	NT	Blood	To treat Tuberculosis	Fresh blood taken orally	Oral
Mammalia	River Dolphin	Sihu	<i>Platanista gangetica</i>	EN	Oil	Female infertility	Dolphin oil and Garlic paste is mixed properly and prescribed to eat for 3 days regularly	Oral
Mammalia	Rhino	Gour	<i>Rhinoceros unicornis</i>	VN	Urine	To treat Jaundice	Urine is prescribed to drink	Oral
Mammalia	Bat	Baduri	<i>Rhinolophus sp.</i>	LC	Whole body	Treat Asthma	Cooked and consumed to	Oral
Mammalia	Squirrel	Karkeytua	<i>Sciurus carolinensis</i>	LC	Flesh	Treat Cough	Raw flesh is consumed	Oral
Mammalia	Pig	Gahori	<i>Sus scrofa domestica</i>	LC	Oil	Joint pain	Oil is prescribed to apply	External



							externally overcome	
Reptilia	Turtle	Kaso	<i>Chelonia sp.</i>	LC	Flesh	Skin disease	Ash of the flesh applied in affected area	External
Reptilia	Gecko	Tokay gecko	<i>Gekko gekko</i>	LC	Whole body	Skin disease	Fried and eaten to treat	Oral
Reptilia	Tortoise	Kaso	<i>Testudo sp.</i>	LC	Cover shell	Uterine bleeding	Meat is prescribed to eat	Oral
Reptilia	Bengal monitor	Gui	<i>Varanus bengalensis</i>	NT	Meat	Skin disease/itching	Meat is prescribed to eat	Oral

Demographic studies derived from various articles and journals indicate that individuals from rural areas possess a stronger belief in and deeper knowledge of the origins and effects of traditional medicine compared to their urban counterparts. This disparity may stem from the ease of access to modern healthcare services in urban areas or the lesser exposure to traditional practices in such settings.

During the survey interactions, a significant majority of respondents were male, comprising 79.5% of the participants, while female respondents accounted for only 20.5%. Most of these respondents came from economically disadvantaged backgrounds and were largely illiterate. Despite these challenges, they exhibited a profound belief in traditional medicine. Many of the respondents were unemployed, with a significant portion engaged in farming and agricultural activities. Additionally, they practiced traditional healing therapies as a part-time endeavor to serve their communities. The age range of the respondents varied from 25 to 90 years. Elderly individuals demonstrated a more extensive knowledge of traditional medicine, including its preparation and dosage, in comparison to younger participants. The respondents belonged to six distinct ethnic communities: Karbi, Bodo, Dimasa, Rabha, Garo, and Kuki. Among these, the Karbi community contributed the largest number of respondents who provided the most detailed information about traditional medicine.

The study identified 34 plant species and 46 animal species used in the preparation of traditional animal-based medicines to treat various ailments. Some commonly utilized plants, animals, and their derivatives are documented in Table 1 and Table 2. Findings from group discussions and personal interviews with villagers and traditional practitioners revealed that there are four primary methods of preparing traditional animal-based medicines. The most prevalent method involved consuming raw materials, accounting for 37.5% of preparations. This was followed by boiling (27.5%), cooking (25%), and frying or making a paste (10%).

The traditional medicines were administered to patients in three main ways: orally (84%), topically (14%), and nasally (2%). Oral consumption was overwhelmingly preferred by patients over the other methods. These traditional preparations, derived from various plant and animal species, were employed to treat a wide range of ailments, including asthma, body pain, pneumonia, jaundice, wound healing, and menstrual issues, among others. Specific combinations of plant and animal products were often used for more effective treatments, although there were instances where a single animal species preparation sufficed.

This practice of combining various species and products for enhanced treatment effectiveness has been handed down through generations based on observations and trials conducted over several years. However, this valuable knowledge is often lost with the passing of elderly practitioners who hold such wisdom. During the study, respondents were initially reluctant to disclose the specific locations where they collected animal specimens. Eventually, they admitted to gathering these specimens from nearby forests and local areas.

Historically, the use of traditional medicine among local tribes was driven by limited access to modern healthcare. Additionally, some individuals practiced it as a supplementary occupation to augment their income, especially in low-income groups. This knowledge, passed down from their ancestors, continues to be practiced due to its economic advantages and the respect it garners within the community.

In the contemporary context, the persistence of traditional medicine can be attributed to the awareness of its therapeutic benefits. However, despite its advantages, many superstitious beliefs are intertwined with these traditional practices. It is crucial to separate ethnomedicine from superstition to maximize its benefits for local populations. Awareness campaigns could be organized to educate people about the proven benefits of traditional practices, using the data collected during this study and showcasing the ailments successfully treated through these methods.

## CONCLUSION

The practice of folk and traditional medicine is gradually declining. This decline can largely be attributed to factors such as the increasing commercialization and modernization of society, which diminish the relevance of traditional methods. Additionally, the growing demand for medicinal plants has led to the deterioration of these resources, while the lack of substantial financial incentives and income-generating opportunities discourages traditional healers from continuing their practices. To counter this decline, advanced research on traditional medicinal practices is imperative.

In Karbi Anglong, the majority of the population relies on multiple healthcare systems depending on the nature of the ailment, the availability of medicine, and the cost involved. However, many individuals lack access to allopathic medicine due to its potential side effects, limited availability, and high cost. As a result, traditional medicine holds significant potential, not only within the medical field but also in research and academic pursuits. The validation of traditional medicinal claims through modern scientific methods can greatly enhance the credibility and acceptance of these practices within ethnic communities. This, in turn, could generate economic benefits for the communities involved.

Furthermore, traditional medicinal knowledge is predominantly transmitted orally from one generation to the next. Without proper documentation, there is a risk that this invaluable knowledge may be lost over time. Therefore, it is essential to record and preserve these practices to ensure they endure and remain accessible to future generations.

In the rural areas of the study sites, the use of plants, animals, and their derivatives for indigenous medical purposes forms the primary healthcare system. This study aims to document the rich traditional therapeutic knowledge that is prevalent among the indigenous communities in certain parts of Karbi Anglong. Traditional knowledge is not only important for its pharmacological and medicinal value but also for its deep cultural significance and the emotional connections it holds for the people. This research lays the foundation for future scientific exploration and validation of the therapeutic efficacy of these traditional practices.

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**Conflict of Interest** The authors declare that they have no conflict of interest.

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