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Exploring the diversity of ethnomedicinal herbs among the Karbi Tribe of Bokajan Sub Division of Karbi Anglong District, Assam

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Abstract:

This study was carried out to document the herbal ethnomedicinal plants utilized by the Karbi tribe residing in Bokajan Subdivision of Karbi Anglong District, Assam. A pre-structured questionnaire survey and quantitative analysis were employed to gather information about the medicinal plants from the study area. A total of 28 ethnomedicinal herbs, representing 28 genera and 18 families were identified. The findings revealed that leaves are the predominant part of the plants used for treating various health ailments within the Karbi community.

Key Words: Ethnomedicinal plant, Herb, Bokajan, Karbi tribe, Karbi Anglong.

Introduction:

Approximately 90% of the global population relies on traditional medicine systems (Bhatia et al. 2014) and it accounts for about 40% of all healthcare provided. Notably, around 85% of traditional medicines are plant-derived (Prasad and Bhattacharya, 2003; Phondani et al 2014), which highlights the intrinsic link between mother nature and healthcare. In India, various traditional systems of medicine have been practiced for centuries, with Ayurveda, Siddha, and the Unani system being among the most widely accepted and recognized (Rajkumar and Shukla, 2007) Tribal communities, especially those residing in rural areas of India, have great knowledge of local plant resources, and they still utilize the endemic plants to treat various ailments. Moreover, they have no side effects and protect human health by giving resistance (Jadeja et al. 2006). However, the uses and applications of these plants can vary significantly from one locality or community to another. Among the tribes of India, the Karbi tribe is a major ethnic group, residing in Karbi Anglong District of Assam. They have an unfathomable, harmonious relationship with Mother Nature. Traditional or folk medicine is still prevalent among them as a principal form of health care, and the legacy

of utilizing the indigenous plants is passing through generation after generation in remote areas of the district.

Documenting the traditional medicinal plants utilized by tribal communities is crucial for uncovering the bioactive therapeutic compounds of them, which will open new frontiers for the search for efficient herbal drugs. Despite numerous studies on medicinal plants across different regions of India, scientific documentation is scarce regarding the herbal ethnomedicinal plants exploited by the Karbi tribal community. Furthermore, several challenges such as modernization, migration, education, and shifts in economic status also pose significant threats to the conservation of this traditional knowledge. This study aims to survey and document the ethnomedicinal herbs utilized by the Karbi Tribal community inhabiting in Bokajan Subdivision of Karbi Anglong District, Assam.

Methodology

Study area

The study was carried out in the Bokajan subdivision of Karbi Anglong district of Assam, India (Fig 1). It is situated at 26.02°N latitude and 93.78°E longitude and has an average elevation of 138 meters (453 feet) above sea level and placed in the eastern side of the Karbi Anglong District and the site is famous for the placement of the Cement Corporation of India, (CCI). The area hosts a diverse array of communities, with the Karbi community being the most prominent. The subdivision is home to the Dhansiri River, which flows through the area. The soil of this area is primarily sandy and loamy, acidic. The area is suitable for the cultivation of teak, lemon, rice, and different vegetables like pumpkin, tomato, brinjal, ladies finger, chilly, cabbage, etc.

Exploration and documentation

To gather information on ethnomedicinal uses in the study area, field survey was conducted during 2023-2024. Data was collected using questionnaires and through personal interviews with folk healers. After the collection of the specimens, herbaria were prepared following the methodology of Jain and Rao, 1977. Collected plant species were further identified by comparing with identified specimens kept at Guwahati University herbarium, Assam and BSI, Shillong and with the help of flora references namely Flora of British India (Hooker, vol 1-7) and Indian Medicinal Plants of Kirtikar and Basu, 1918.

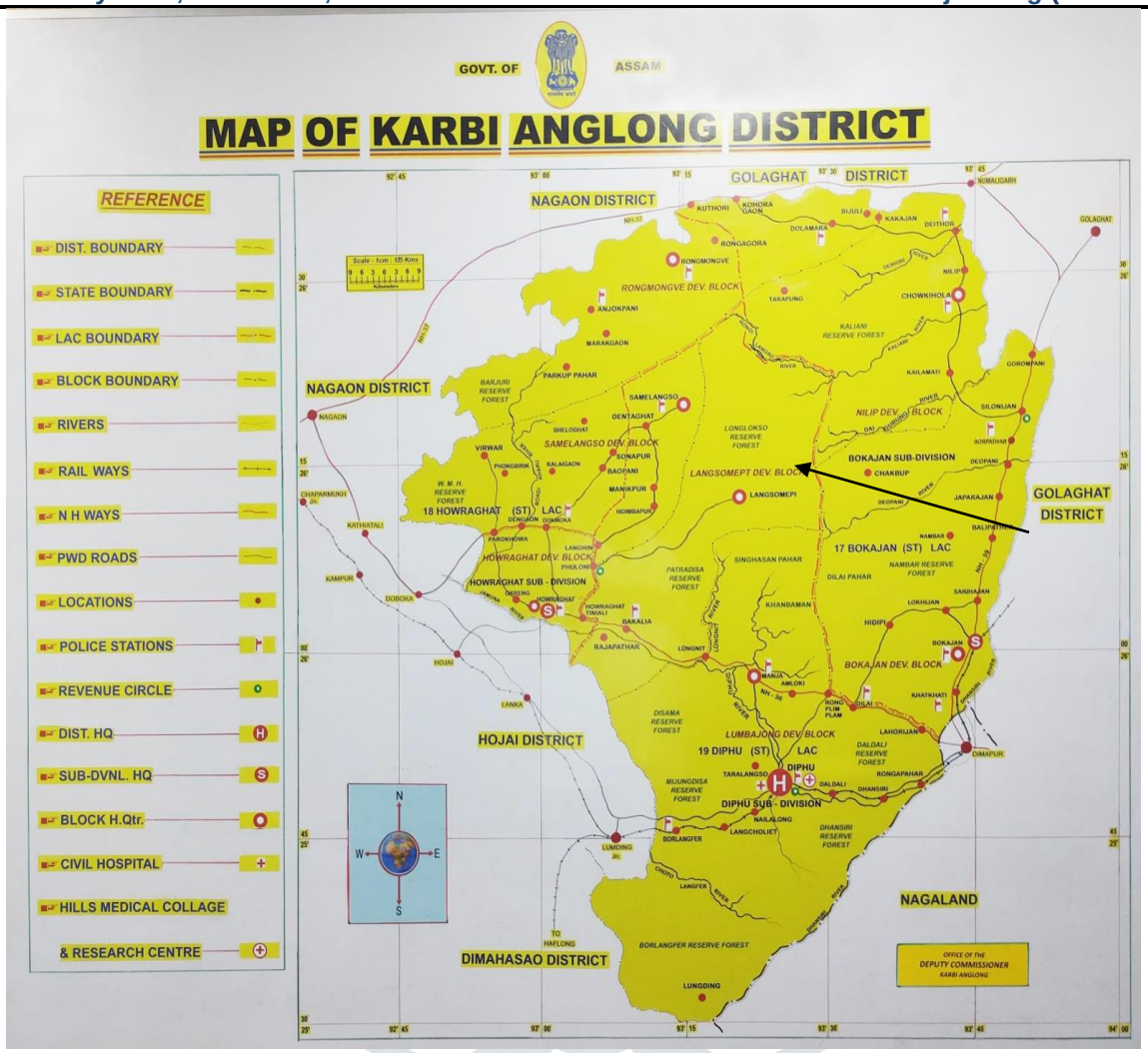

Fig 1: Map of Karbi Anglong District with study area

Results and discussion:

The current study revealed that the Karbi tribal community, especially residing in Bokajan Sub Division, was skilled in ethnomedicinal practices. During the study period, a total of 28 distinct endemic herbs of 28 genera and 18 families were documented from Bokajan, each serving specific therapeutic purposes. Out of 28, four plants were identified for their effectiveness in alleviating cough, four were recognized for their role in managing dysentery, five plants were found to be beneficial for treating jaundice, etc. The study also highlighted the presence of endemic plants responsible for blood formation, management of hypertension, kidney stones, poisonous bites, sinusitis, constipation, etc. A comprehensive summary of these plants and their respective applications is detailed in Table 1 and Fig 2.

Table 1: Ethnomedicinal herbs utilized by the Karbi tribal community residing in Bokajan.

Scientific Name	Local Name	Family	Folk Uses	Plant parts used
Leucas aspera	Chanrong aan	Lamiaceae	Sinus problem	Root
Euphorbia hirta	Babchulang	Euphorbiaceae	Dysentery	All parts
Ageratum conyzoides	Bongjnai	Asteraceae	Wound	Leaves
Amaranthus spinosus	Dido	Amaranthaceae	Poisonous bite	Roots
Bryophyllum pinnatum	Deng-ar	Fabaceae	Kidney stone	Leaves
Lantana camara	Arleng-ar-long	Verbenaceae	Constipation	Leaves
Mimosa pudica	Bab therak	Fabaceae	Jaundice	Root
Oxalis corniculata	Vathung	Oxalidaceae	Dysentary	All parts
Solanum nigram	mekbob	Solanaceae	Intestinal worm	Mature fruits
Phyllanthus niruri	*Pharchingki*	Phyllanthaceae	Jaundice	All parts
Ipomoea aquatica	Longle thelu	Convolvulaceae	Dibeties, constipation	aerial parts
Alpinia nigra	Pangkhi	Zingiberaceae	Cough	Rhizome
Acmella paniculata	Puejong	Asteraceae	Toothache	Flower
Zingiber officinale	Bap soki	Zingeberaceae	Cough, digestion	Rhizome
Cynodon dactylon	Hanso	Poaceae	Intestinal infection	Leaves
Ocimun sanctum	kethir-ar	Lamiaceae	Cough	Leaves
Mintha virdis	Athingpi	Lamiaceae	Indigestion	Leaves
Centella asiatica	Thang-so	Apiaceae	Dysentery	Leaves
Oxalis corniculata	Chong amok	Oxalidaceae	Dysentery	Leaves
Acorus calamus	Vothung	Acoraceae	blooting	Leaves
Colocasia esculenta	mekbop	Araceae	blood formation, bee	Leaves
Musa acuminata	Henru	Musaceae	bite	Flower
Hydrocotyle	Longdung	Apiaceae	blood formation	Aerial parts
sibthorpioides	----	Poaceae	indigestion	Stem
Saccharum officinarum	Nok	Fabaceae	Jaundice	Leaves
Cassia tora	*Bapduli*	Amaryllidaceae	Jaundice	Bulb
Allium sativum	Harsun kelok	Bromeliaceae	Cough, hypertension	Leaves, shoot
Ananas comosus	Parok	Zingiberaceae	Uti problem, Jaundice	Rhizome
Curcuma longa	jangphong		Ringworm, scabies	
	Tharmit			

Ageratum conyzoides

Mimosa pudica

Hydrocotyle sibthorpioides

Euphorbia hirta

Amaranthus spinosus

Oxalis corniculata

Phyllanthus niruri

Leucas aspera

Ocimun sanctum

Mintha virdis

Colocasia esculenta

Cassia tora

Fig 2. Photographs of some ethnomedicinal herbs utilized by Karbi Tribal community of Bokajan Sub Division.

The Study also revealed that Karbi tribe employs various parts of different plants in their folk medicine preparations. A total of 9 plant parts were recorded including root, all parts, leaves, mature fruits, rhizome, flower, aerial parts, stem and bulbs. Kalita et al., 2014 and Chakraborty and Kalita (2012) have also reported the ethnomedicinal use of leaves in treating various ailments. Among the plant parts, leaves were observed as the dominant used part and account for 44% followed by roots, rhizome and whole plant (11% each), flowers (7%). Mature fruit, stem, bulb, and aerial parts were also utilized and were responsible for about 4%

each (Fig 3). Predominance of leaves in ethnomedicinal practices aligns with previous findings of Baidy et al., 2020, Moshi et al., 2012, and Tabuti et al., 2010.

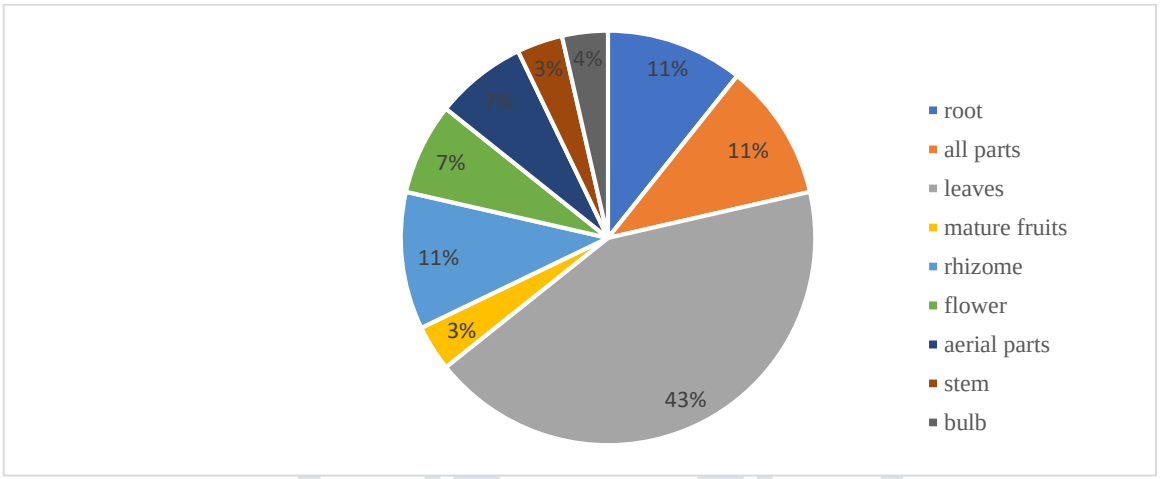

Fig 3. Plant parts utilized in folk medicine preparation by the Karbi tribe residing in Bokajan Sub Division, Karbi Anglong.

In healing practice, member of herb species belonging to the family Lamiaceae, Fabaceae and Zingiberaceae was observed to contribute the highest, having 3 species, followed by Apiaceae, Asteraceae, Oxalidaceae, and Poaceae (2 species). Twelve families represented by single species to each (Fig. 4). Highest utilization of members of the Fabaceae family among the tribal communities was recorded by Macêdo et al, 2018; Marjana et al., 2018. However, Baisy et al., 2019 informed a higher reliance on plant species belonging to families Asteraceae and Lamiaceae in the traditional healing practices of the Karbi tribe residing in the West Karbi Anglong District of Assam.

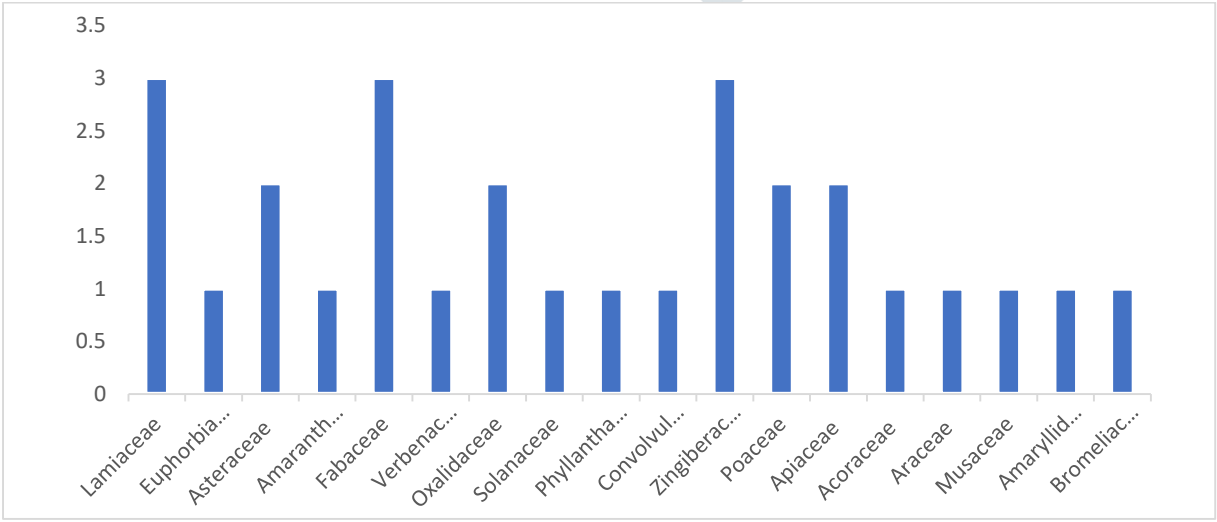

Fig 4. Number of plant species from different families utilized in healing practice by the Karbi tribe, Bokajan Sub Division.

Conclusions

The present observation revealed that the Karbi Tribe inhabiting Bokajan Sub Division of Karbi Anglong District of Assam relies on a variety of ethno-botanical plants, including numerous herbal species which play an important role in their traditional system of healthcare. Study also sheds light on the incidence of the remarkable diversity of herbal ethnomedicinal flora in the Bokajan area.

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