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Traditional ecological knowledge of karbi tribe of Assam with emphasis on health care system

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Abstract

Traditional ecological knowledge (TEK) refers to an informal system of knowledge gained by communities through an intimate connection with the environment and its processes. Out of all TEKs prevailing importance of gradually diminishing local herbal medicines among indigenous tribes needs reconsideration. Karbis is one of the indigenous tribe of Assam racially Indo-Mongoloid and linguistically Tibeto-Burman group, predominantly inhabitant of Karbi Anglong district. They believed to have a long association with forests and close observation of flora and fauna. Herbal remedies comprise an effective element of the health care system among the rural inhabitant. Extensive field survey was conducted in six blocks of East and two blocks of West Karbi Anglong districts during 2018 to 2021. Schedules are developed for in-depth interviewing folk medicinal healers to document all possible and existing traditional ethno medicinal information. During the study hundred six numbers of medicinal plants were documented which are used by Karbi healers for treating numerous ailments. Among them twelve plants were identified as priorities medicinal species which have significant value to discover modern-day drugs. Comparative analysis of utility of folk medicinal plants between Karbis and other tribes Bodo, Sonowal-Kachari, Mishing and Dimasas of Assam revealed that 38% similarity was found with Dimasa tribe might be their identical topography and free migration of knowledge. Plantation and conservation of medicinal plants by the traditional healer in their backyard will positively contribute to bio-diversity management also.

Keywords: Traditional health care, Ethno medicinal plants, prioritize, Conservation, Karbi Tribe, Assam

1. Introduction

Traditional ecological knowledge (TEK) described the knowledge and beliefs that Indigenous peoples hold of their environments that was handed down through the generation ^[1]. It has gained attention in the context of accelerated global change and generalized ecosystem service decline. The locally developing knowledge held by indigenous people was rooted in an intimate long-term involvement with local ecosystems, which could be a crucial tool and source of knowledge for long-term human health, community sustainability, and preservation of unique ecosystems. The traditional medicinal species provided good substitute in health care system of rural communities ^[2]. It was estimated that about 80% populations of developing countries trust upon on traditional medicinal system. Documentation of traditional medication is an essential aspect of conservation approach. The traditional use of medicinal plants can be define as an age old practice where locally available plants are collected by the indigenous communities either from wild or from home garden for treating different ailments. Although the initial use of traditional medicines was due to the absence of modern scientific medicines, researches record the prevalence such herbal as well as avian or fauna driven folk medicines all around the world. Easily accessible, cost effective, safe and almost with no side effects has proved an unceasing journey for the folk medicines from the time of Vedas. Hence, locally prepared medicine is an essential element while documenting traditional knowledge systems of the indigenous communities. A wide range of ethno medicinal plants and their application on health care system of rural tribal of Assam was discussed by many authors time to time ^[3-11]. Karbis is one of the indigenous tribe of Assam racially Indo-Mongoloid and linguistically Tibeto-Burman group, predominantly inhabitant of Karbi Anglong district ^[12] with a population of 430452 by 2011 census. They believed to have a long association with forests and close observation of flora and fauna. The traditional healers have extensive knowledge on herbal medicine and the used different recipes of ailment from natural substances like plant, animal and minerals. Documentation of traditional medication is an essential aspect of conservation approach also.

2. Materials and Methods

Extensive field survey was conducted in six blocks of East and two blocks of West Karbi Anglong districts during April 2018 to February 2021(Figure-1).

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By using the stratified random sampling six villages were chosen from each block for the study and 10% households have been selected from each of the villages randomly. Schedules are developed for in-depth interviewing folk healers to document all possible and existing traditional ethno medicinal information. Knowledge was gathered from various medicinal folk healers who treat locals without actually bearing the prices of scientific medicines.

2.1 Survey Methods: In order to document the traditional therapeutic plants, administration, conservation knowledge related to different ailment system and its implications of Karbi tribe, different survey methods were used –

- Personal Interview method was used to collect information from the medicinal healers.

In order to confirm the similarity for use of different medicinal species and mode of administration with other native dominant tribes of Assam, Sorenson Similarity Index were used

Sorenson Co-efficient ^[13] $S_s = \frac{2S}{2S+a+b}$ (S = Common in both, a = only in Karbi, b = only in other tribe in comparison). The tribes were chosen on the basis of topography (Hills and plains) and the major inhabitants in the state. Collected plant species identified with the help floras, consulting herbaria of Botanical survey of India, Shillong (ASSAM). Nomenclature of the species was confirmed with data bases like The Plant List, Tropicos.

3. Result and Discussions

Herbal remedies comprise an effective element among the rural inhabitant of Karbi Anglong district. Karbi Folk medicine involved not merely the traditional ways through herbs but the magico-religious practice in which they uses chants and worship to cure diseases. Their affinity towards living close to the forest some diseases like malaria, worm problem, Jaundice, Diahoerria etc., and still depend on traditional healing practices to protect themselves. Earlier a few relevant ethno medicinal studies of Karbi tribe were reported various authors time to time ^[9-11], present study emphasize more information which have not been deliberated in depth. One hundred six numbers of medicinal plants were documented which were used by Karbi healers for treating numerous ailments like Malaria, Jaundice, Dysentery, Diahoerria, gastritis, dog bite/snake bite, Pneumonia, urinary etc. Maximum number of therapeutical species was belonging to Euphorbiaceae and Solanaceae family followed by Fabaceae, Malvaceae, Poaceae and Zingiberaceae. Thirty nine herbs were used for various ailments. However, leaves, fruits, bark, flower bud and roots of thirty five tree species were used to practice different doses of preparation. Observation showed that the most frequent used plant part was leaves followed by rhizome, root and aerial parts (Figure 2). As the mode of administration concern, highest mode of administration was observed in paste (23.03%), however 22.4% medication was taken as juice and 18.18% was as decoction of the plant parts (Figure-2). Nineteen groups of ailment were recorded during the study.

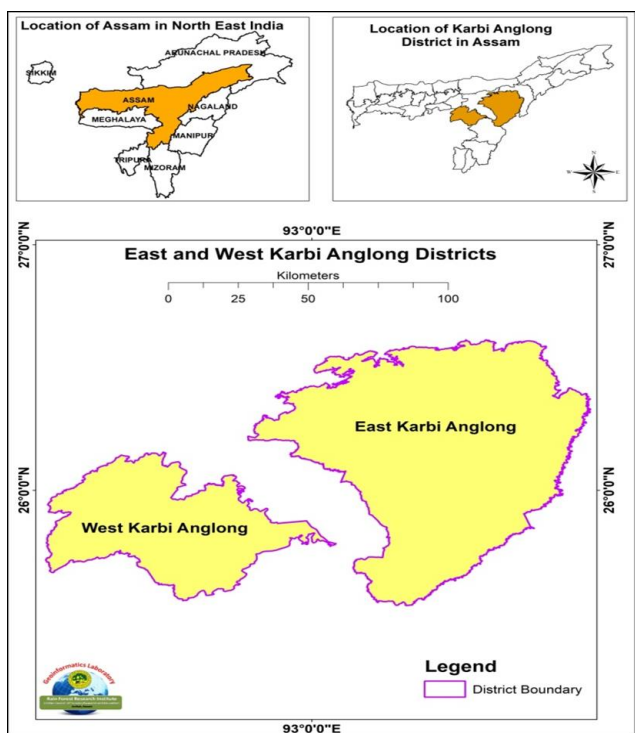


Fig 1: Study Map of Karbi Anglong District, Assam

- Household survey was conducted using structured questionnaire.
- Focus Group Discussions: Group discussions were organized in each village of every selected block included members of all age groups and both the genders.

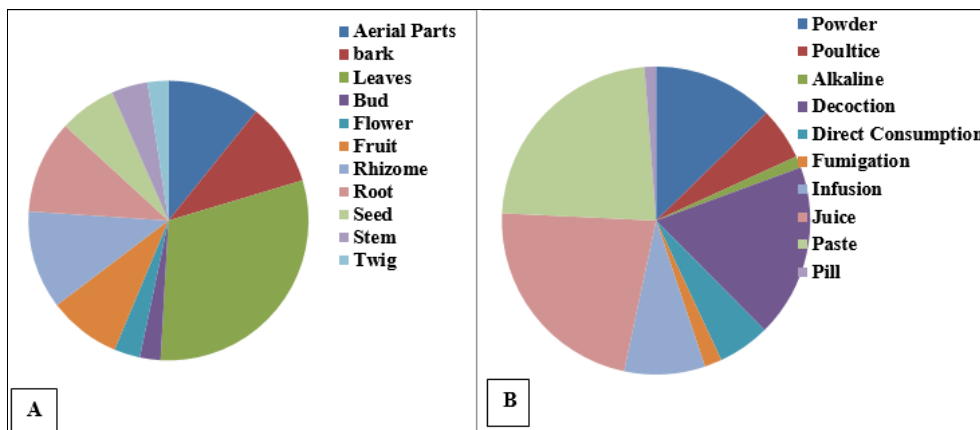


Fig 2: A-Plant part used in different ailments B-mode of administration

The doses of herbal medicine prescribe by the traditional healer are differ at the age of the patients. The practitioners diagnose the health problem by visual observation of the

patient and through conversation. Generally it is fewer in doses for children rather than adult. Similarly, medication and recommendation rates are depending on the extent and period

of the complaint. All the traditional healers are not performing the similar treatment, everyone have their own field of expertization. Some familiar protective medicinal plants commonly sold in the regular local market in massive amount that were collected from natural sources. Some very common fruits and wild vegetable of medicinal importance are taken regularly by the people in their dietary system which plays a major role in nutritional necessities. Present study revealed that over exploitation of *Cissus quadrangularis*, *Clerodendrum serratum*, *Curcuma amada*, *Ficus erecta*, *Homalomena aromatica*, *Tetra stigma thomsonianum*, *Zanthoxylum oxyphyllum* from the natural resources to meet their subsistence need, the plants become threat. Increasing marketability, livelihood dependent, shrinkage of forest area and perennial wet land also augment the risk. Some highly prioritized medicinal plants have immense value in curing

many diseases by multiple uses and shown in table 1. It was stated that the bulb of *Eleutherine bulbosa* has been traditionally used by Dayak community of Indonesia in various diseases like diabetes, breast cancer, nasal congestion, and fertility problems and scientifically also established anti-cancer, anti-diabetic properties and others ⁴. Karbi traditional healer also prescribed the species as against cancer. Another species *Brucea mollis* locally known as *quinine plants*, used in malaria and ordinary fever by the Karbi tribe. Earlier it was reported for the treatment of malaria in India and China conventionally ¹. However, due to habitat destruction and over exploitation it was becomes endangered in North East India which is the home land of the species. Hence, conservation of the species both *in situ* and *ex situ* suggested for future generation.

Table 1: Selected prioritized medicinal plants used by Karbi tribe

Sl. no.	Name of the species	Family	Habit	Part used/mode of Administration	Diseases
1	<i>Abrus precatorius</i> L.	Fabaceae	Climber	Root decoction Leaf decoction	Respiratory diseases Fever
2	<i>Achyranthus aspera</i> L.	Amaranthaceae	Herb	Root powder Twig paste	Jaundice Inflammation & Pain
3	<i>Aesculus assamica</i> Griff.	Sapindaceae	Tree	Leaf juice	Inflammation & Pain
4	<i>Cheilocostus speciosus</i> (J. Koing) C.Specht.	Costaceae	Herb	Rhizome juice	Liver disorder
5	<i>Cissus quadrangularis</i> L.	Vitaceae	Climber	Stem paste	Analgesic, help in broken bones
6	<i>Crataeva nurvala</i> Buch-Ham	Capparaceae	Tree	Bark juice	Urinary problem
7	<i>Eleutherine bulbosa</i> (Mill.) Urb.	Iridaceae	Herb	Bulb juice	Intestinal parasites, Cancer
8	<i>Brucea mollis</i> Wall. ex Kurz	Simaroubaceae	Tree	Seed	Anti malaria & fever
9	<i>Hoya parasitica</i> Wall ex Wight	Apocynaceae	Climber	Bark juice	Inflammation & ear Pain
10	<i>Oroxylum indicum</i> (L.) Vent	Bignoniaceae	Tree	Seed powder Flower decoction Root paste	Helminthiasis Gastro-intestinal Dermatological
11	<i>Picrasma javanica</i> Blume.	Simaroubaceae	Tree	Bark decoction	Gastro-intestinal
12	<i>Scoparia dulcis</i> L.	Scrophulariaceae	Herb	Whole plant Juice	Stomach problem Kidney stone

Detailed information of folk medicines of Karbi tribe was given in Table-2 and photograph of some medicinal plant used by Kabi tribe were depicted in plate 1 and 2.

Table 2: Ethno medicinal plants used by Karbi tribe, Assam

Sl. No.	Name of the Species	Family	Diseases	Part Use	Administration
1	<i>Abroma augustum</i> (L.) L.f.	Malvaceae	Sexual disorder	Roots	Decoction
2	<i>Abrus precatorius</i> L.	Fabaceae	Respiratory	Roots	Decoction
			Fever	Leaves	Decoction
3	<i>Acacia pennata</i> (L.) Willd.	Caesalpiniaceae	Poison	Bark, Leaves	Paste
4	<i>Achyranthus aspera</i> L.	Amaranthaceae	Inflammation & Pain	Twigs	Paste
			Liver Disorder	Roots	Powder
			Sexual	Roots	Juice
5	<i>Adhatoda vasica</i> Nees.	Acanthaceae	Gastro-intestinal	Leaves	Juice
			Fever	Roots	Juice
6	<i>Aesculus assamica</i> Griff.	Sapindaceae	Inflammation & Pain	Leaves	Juice
7	<i>Ageratum houstonianum</i> Mill.	Asteraceae	Respiratory	Leaves	Powder
8	<i>Allium sativum</i> L.	Amaryllidaceae	Poison	Bulb	Paste
9	<i>Alpinia nigra</i> (Gaertn.)B.L.Burt	Zingiberaceae	Gastro-intestinal	Rhizome	Juice
			Inflammation & Pain	Rhizome	Paste
10	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	Amaranthaceae	Gastro-intestinal	Aerial Parts	Decoction
			Urinary/Rectal	Aerial Parts	Decoction
11	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Poison	Aerial Parts	Paste
12	<i>Amorphophallus bulbifer</i> (Roxb.) Blume.	Araceae	Dermatological	Stem	Juice
13	<i>Amphineuron opulentum</i> (Kaulf.) Holttum.	Thelypteridaceae	Inflammation & Pain	Leaves	Paste
14	<i>Andrographis paniculata</i> (Burm.f.) Nees.	Acanthaceae	Respiratory	Leaves	Powder
			Gastro-intestinal	Leaves	Decoction
			Dermatological	Leaves	Paste
			Tooth	Leaves	Poultice
15	<i>Antidesma acidum</i> Retz.	Phyllanthaceae	Poison	Leaves	Poultice
			Diabetes	Fruits	Juice
16	<i>Averrhoa carambola</i> L.	Oxalidaceae	Jaundice	Leaves	Paste
			Gastro-intestinal	Leaves	Direct Consumption
17	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Dermatological	Leaves	Paste

			Respiratory	Bark	Decoction
18	<i>Bixa orelina</i> L.	Bixaceae	Cancer	Seeds	Juice
19	<i>Bridelia retusa</i> (L.) A.Juss.	Phyllanthaceae	Dermatological	Bark	Paste
20	<i>Brucea mollis</i> Wall. ex Kurz	Simaroubaceae	Malaria/Common Fever	Seeds	Direct Consumption
21	<i>Cajanus cajan</i> (L.) Millsp.	Fabaceae	Sexual	Leaves	Pill
22	<i>Capsicum annuum</i> L.	Solanaceae	Respiratory Inflammation & Pain	Fruits Leaves	Direct Consumption Paste
23	<i>Cassia alata</i> L.	Fabaceae	Helmenthiases	Leaves	Juice
24	<i>Centella asiatica</i> (L.) Urban.	Apiaceae	Gastro-intestinal	Aerial Parts	Decoction
			Dermatological	Aerial Parts	Juice
			Respiratory	Aerial Parts	Decoction
			Neurocrine	Aerial Parts	Juice
25	<i>Cheilocostus speciosus</i> (J.Koing) C.Specht.	Costaceae	Liver disorder	Rhizome juice	Juice
26	<i>Chromolaena odorata</i> (L.) King & Rob.	Asteraceae	Sexual disorder	Twigs	Poultice
27	<i>Cissampelos pareira</i> L.	Menispermaceae	Gastro-intestinal	Leaves	Infusion
			Dermatological	Roots	Paste
			Helmenthiases	Stem	Paste
28	<i>Cissus quadrangularis</i> L.	Vitaceae	Analgesic, help in broken bones	Stem	Paste
29	<i>Clerodendrum infortunatum</i> L.	Lamiaceae	Sexual disorder	Twig	Decoction
30	<i>Commelina benghalensis</i> L.	Commelinaceae	Gastro-intestinal	Flower	Infusion
31	<i>Colocasia esculenta</i> (L.) Schott.	Araceae	Nurocrine	Leaves	Fumigation
32	<i>Crataeva nurvala</i> Buch-Ham	Capparaceae	Inflammation & Pain	Stem	Juice/Extract
33	<i>Croton Caudatus</i> Geiseler	Euphorbiaceae	Urinary/ Rectal	Bark	Juice
34	<i>Crotalaria pallida</i> Aiton.	Fabaceae	Sexual Disorder	Bark	Juice
35	<i>Curcuma longa</i> L.	Zingiberaceae	Respiratory	Leaves	Powder
			Inflammation & Pain	Roots	Decoction
			Gastro-intestinal	Rhizome	Decoction
			Dermatological	Rhizome	Paste
36	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Inflammation & Pain	Rhizome	Juice
			Poison	Rhizome	Paste
37	<i>Datura stramonium</i> L.	Solanaceae	Dermatological	Aerial Parts	Paste
38	<i>Dillenia indica</i> L.	Dilleniaceae	Blood Dysentery	Aerial Parts	Juice
39	<i>Drymaria cordata</i> (L.) Willd. ex Roem. & Schult.	Caryophyllaceae	Inflammation & Pain	Leaves	Poultice
			Gastro-intestinal	Fruits	Decoction
			Dermatological	Fruits	Juice
			Dermatological	Aerial Parts	Paste
40	<i>Dysoxylum binectariferum</i> Hiern.	Meliaceae	Respiratory	Aerial Parts	Fumigation
41	<i>Eleutherine bulbosa</i> (Mill.) Urb.	Iridaceae	Inflammation & Pain	Aerial Parts	Paste
42	<i>Erythrina stricta</i> Roxb.	Fabaceae	Dermatological	Seed	Powder
43	<i>Ficus benghalensis</i> L.	Moraceae	Intestinal parasites, Cancer	Bulb	Juice
44	<i>Flacourtia jangomos</i> (Lour.) Raeusch.	Salicaceae	Dermatological	Flower	Paste
45	<i>Garcinia pedunculata</i> Roxb. ex Buch.-Ham	Clusiaceae	Gastro-intestinal	Leaves	Infusion
46	<i>Gnetum gnetum</i> L.	Gnetaceae	Cardio-Vascular	Fruit	Juice with honey
47	<i>Gmelina arborea</i> Roxb.	Lamiaceae	Gastro-intestinal	Bark, Seeds, Leaves	Decoction, Infusion
48	<i>Hibiscus sabdariffa</i> L.	Malvaceae	Neurocrine	Leaves	Poultice
49	<i>Hoya parasitica</i> Wall ex Wight	Apocynaceae	Gastro-intestinal	Bark	Decoction
50	<i>Hydrocotyle sibthorpioides</i> Lam.	Araliaceae	Inflammation & Pain	Bark	Decoction
51	<i>Ichnocarpus frutescens</i> (L.) W.T.Aiton.	Apocynaceae	Poison	Leaves	Paste, Decoction
52	<i>Ipomoea quamoclit</i> L.	Convolvulaceae	Inflammation & Pain	Leaves	Juice/Extract
53	<i>Jatropha gossypifolia</i> L.	Euphorbiaceae	Gastro-intestinal	Leaves	Juice
54	<i>Kaempferia galanga</i> L.	Zingiberaceae	Poison	Leaves	Paste
55	<i>Lawsonia inermis</i> L.	Lyrthaceae	Poison	Leaves	Paste
56	<i>Leea indica</i> (Burm.f.) Merr.	Vitaceae	Inflammation & Pain	Leaves	Paste
			Gastro-intestinal	Leaves	Paste
57	<i>Leucas aspera</i> (Willd.) Link.	Lamiaceae	Respiratory	Roots	Infusion
			Respiratory	Leaves	Decoction
			Helmenthiases	Leaves	Paste
			Inflammation & Pain	Leaves	Juice
			Poison	Leaves	Juice
58	<i>Mangifera indica</i> L.	Anacardiaceae	Helmenthiases	Seeds	Powder Eaten
59	<i>Manihot esculenta</i> Crantz.	Euphorbiaceae	Pshycological	Bark	Infusion
60	<i>Merimia umbellata</i> L.	Menispermaceae	Gastro-intestinal	Seeds	Powder Eaten
61	<i>Micromelum integerrimum</i> (Roxb. ex DC.)	Rutaceae	Gastro-intestinal	Roots	Juice
			Inflammation & Pain	Leaves	Paste
			Gastro-intestinal	Stem	Infusion

	Wight & Arn. ex M.Roem.		Sexual	Stem	Infusion
62	<i>Mimosa pudica</i> L.	Fabaceae	Poison	Roots	Paste
63	<i>Morinda angustifolia</i> Roxb.	Rubiaceae		Leaves	Decoction, Direct Consumption
64	<i>Mucuna nigricans</i> (Lour.) Steud.	Fabaceae	Respiratory	Seeds	Poultice
65	<i>Murraya paniculata</i> (L.) Jack.	Rutaceae	Inflammation & Pain	Roots	Juice
			Urinary/Rectal	Roots	Juice
66	<i>Murraya koenigii</i> (L.) Spreng.	Rutaceae	Gastro-intestinal	Leaves	Juice
67	<i>Musa assamica</i> W.Bull.	Musaceae	Night Blindness	Fruits	Direct Consumption
68	<i>Musa gigantea</i> Kuntze.	Musaceae	Gastro-intestinal	Fruits	Alkaline
69	<i>Musa x paradisiaca</i> L.	Musaceae	Sexual	Stem	Alkaline
			Sexual	Seeds	Infusion
70	<i>Myristica fragrans</i> Houtt.	Myristicaceae	Respiratory	Fruits	Powder
			Fever	Fruits	Powder
			Urinary/Rectal	Fruits	Powder
71	<i>Nicotiana tobaccum</i> L.	Solanaceae	Poison	Leaves	Paste
72	<i>Nyctanthes arbor-tristis</i> L.	Oleaceae	Gastro-intestinal	Leaves	Juice
			Helmenthiases	Leaves	Juice
			Fever	Flower	Juice
			Neurocrine	Aerial Parts	Paste
			Catarac	Aerial Parts	Paste
			Poison	Leaves	Juice
			Inflammation & Pain	Aerial Parts	Decoction
73	<i>Ocimum sanctum</i> L.	Lamiaceae	Gastro-intestinal	Leaves	Infusion
74	<i>Oroxylum indicum</i> (L.) Vent	Bignoniaceae	Oroxylum indicum	Bark	Poultice
75	<i>Oryza sativa</i> L.	Poaceae	Sexual disorder	Seed	Infusion
76	<i>Oxalis corniculata</i> L.	Oxalidaceae	Poison	Leaves	Juice
77	<i>Phlogacanthus tubiflorus</i> Nees.	Acanthaceae	Respiratory	Bud, Leaves	Decoction, Juice
			Helmenthiases	Flower	Powder
78	<i>Physalis peruviana</i> L.	Solanaceae	Inflammation & Pain	Aerial Parts	Decoction
			Fever	Leaves	Paste
79	<i>Picrasma javanica</i> Blume.	Simaroubaceae	Gastro-intestinal	Bark	Decoction, powder
80	<i>Piper betel</i> L.	Piperaceae	Caugh	Poultice	Paste
			Gastro-intestinal	Leaves	Paste
81	<i>Piper longum</i> L.	Piperaceae	Tooth	Seeds	Powder Applied
82	<i>Piper nigrum</i> L.	Piperaceae	Sexual	Seeds	Powder Eaten
			Poison	Seeds	Powder Eaten
83	<i>Polygonum</i> Sp. + Common Hoopoe	Polygonaceae	Stone Problem	Leaves	Powder
84	<i>Psidium guajava</i> L.	Myrtaceae	Gastro-intestinal	Leaves	Decoction
85	<i>Rauwolfia Serpentina</i> (L.) Benth. Ex Kurz.	Apocynaceae	Poison	Roots, Leaves	Paste
86	<i>Rhamnus nepalensis</i> (Wall.) Lawson.	Rhamnaceae	Helmenthiases	Fruits	Fumigation
			Inflammation & Pain	Seeds	Powder Eaten
87	<i>Ricinus communis</i> L.	Euphorbiaceae	Gastro-intestinal	Leaves	Decoction
			Inflammation & Pain	Stem	Worn on body
88	<i>Rhynchosyilis Retusa</i> L. Blume.	Orchidaceae	Cardio-Vascular	Roots	Powder
89	<i>Saccharum officinarum</i> L.	Poaceae	Liver Disorder	Twigs	Juice
			Sexual	Stems	Juice
90	<i>Salmalia malabarica</i> (DC.) Schott and Endl.	Bombaceae	Respiratory	Roots	Infusion
			Urinary/Rectal	Roots	Infusion
91	<i>Scoparia dulcis</i> L.	Scrophulariaceae	Poison	Leaves	Direct Consumption
92	<i>Sida acuta</i> Burm.f.	Malvaceae	Respiratory	Leaves	Powder
93	<i>Sida rhombifolia</i> L.	Malvaceae	Dermatological	Aerial Parts	Paste
94	<i>Solanum torvum</i> Sw.	Solanaceae	Dermatological	Fruits	Direct Consumption
			Helmenthiases	Leaves	Paste
95	<i>Solanum indicum</i> L.	Solanaceae	Dermatological	Fruits	Decoction
			Helmenthiases	Leaves	Direct Consumption
96	<i>Sterculia villosa</i> Roxb. ex Sm.	Malvaceae	Gastro-intestinal	Bark	Decoction
97	<i>Syzygium aromaticum</i> L.	Myrtaceae	Inflammation & Pain	Bud	Decoction
			Tooth	Bud	Poultice
98	<i>Syzygium cumini</i> (L.) Skeels.	Myrtaceae	Respiratory	Seed	Powder
99	<i>Tabernaemontana divaricata</i> R.Br. ex Roem. & Schult.	Apocynaceae	Respiratory	Leaves	Decoction
100	<i>Tamarindus indica</i> L.	Fabaceae	Poison	Fruits	Infusion
101	<i>Terminalia arjuna</i> (Roxb.) Wight. & Arn.	Combretaceae	Orthopedic	Bark	Poultice
102	<i>Terminalia chebula</i> Retz.	Combretaceae	Fever	Fruits	Juice
103	<i>Vatica lanceifolia</i> (Roxb.) Blume.	Dipterocarpaceae	Gastro-intestinal	Bark	Infusion
104	<i>Vitex negundo</i> L.	Lamiaceae	Fever	Leaves	Juice
105	<i>Zingiber officinale</i> Roscoe.	Zingiberaceae	Sexual	Rhizome	Paste
106	<i>Zingiber zerumbet</i> (L.) Roscoe ex Sm.	Zingiberaceae	Fever	Rhizome	Powder Eaten



Plate 1: Medicinal plant used by Kabi tribe

A- *Mimosa pudica* B- *Cheilocostus speciosus* C- *Oxalis corniculata* D- *Drymeria cordata* E- *Alternanthera sesilis* F- *Commelina benghalensis* G- *Manihot esculenta* H- *Rouvifia serpentina* I- *Abroma agusta*

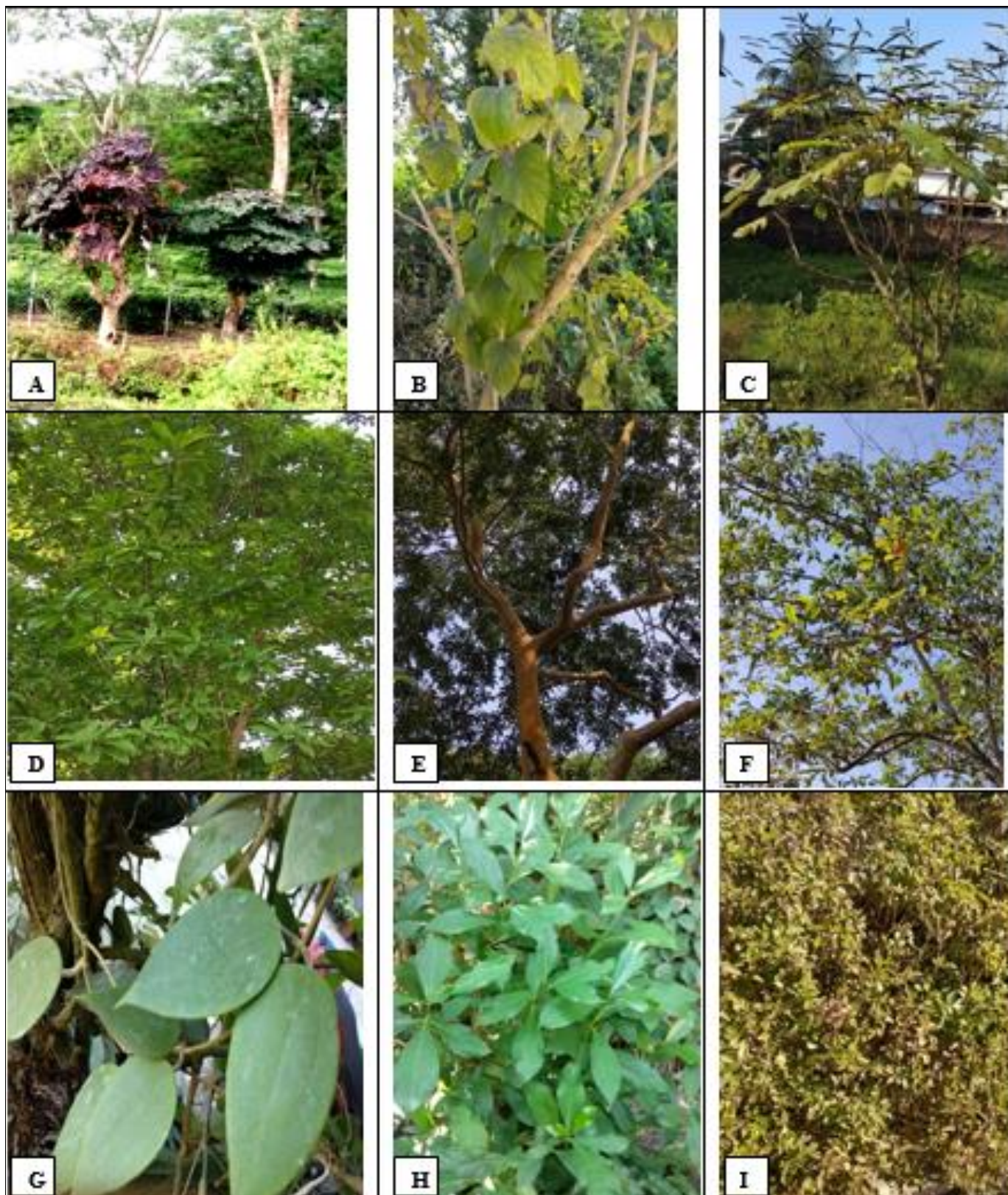


Plate 2: Medicinal plant used by Kabi tribe

A- *Oroxylum indicum* B- *Nyctanthes* C *Senna alata* D- *Dillenia indica* E- *Terminalia arjuna* F- *T chebula* G- *Hoya parasitica* H- *Phlogocanthus tubiflorus* I- *Oscimum basilicum*

Present study deals with the comparison of the primary data (which is collected from the field to understand and document the traditional knowledge attached with the Karbi society) with the available secondary data on various pharmaceutical applications by four native tribes of Assam namely Boro tribe, Dimasa tribe, Sonowal kachari and Mishing tribe. For cross-cultural review, the use of ethno medicinal plant and mode of administration were selected and carry out the relative study.

The selection of the tribes was based on the physiology and demography of the area, the tribes Boro, Mishing, Sonowal Kachari were the domicile in plain areas and Dimasa in hilly regions. Moreover, Mishings, Boros and Sonowal Kacharis have the highest population in the category of plain tribes and Dimasas from the hill tribes (other than Karbis), as per the Census of 2011. Table -3 reveals that out of the four tribes of Assam, which was considered for the study, Dimasa tribe

shares the highest percentage of similarity with the Karbi of 38% for using medicinal plants followed by Mising tribe (34%). Minimum 25% similarity was observed with Bodo tribe. The reason behind such commonness in using the plants may be because of Dima Hasao district, dwellers of Dimasa

tribe located in proximity to that of the Karbi Anglong, therefore, the vegetation distinction was less. However, considering the mode of administration highest similarity was observed with the Mising tribe (13%).

Table 3: Cross-cultural review of ethno medicinal plant uses and mode of administration between different tribes of Assam and Karbi tribe

Tribe	Index	Bodo	Mishing	Sonowal Kachari	Dimasa
Plant uses					
Karbi Tribe	% co-efficient	25%	34%	29%	38%
Mode of administration					
Karbi Tribe	% co-efficient	10%	13%	10%	6.9%

4. Conclusions

Documentation of ethno medicinal knowledge has contributed a number of vital drugs [14]. Ethno medicinal studies are of significant value to discover modern-day drugs from indigenous medicinal resources. Information was gathered from indigenous knowledge of the Karbi tribe bear great potentiality in this aspect. Consequently, further study is necessary to screen out bioactive compound of the medicinal species for establishment of novel drugs. Presently, the traditional medicinal knowledge becomes less significant due to unwillingness of transfer of knowledge to other person with a faith that if they do so the medicine will not work and transfer of knowledge by word of mouth based. Such transfer of knowledge is likely to erosion as it could vanish after the death of elder informant. Another main reason was the refusal of young generation to raise the knowledge. Scientific study on medicinal plants is essential for sustainable development and conservation point of view also. Plantation and conservation of medicinal plants by the traditional healer in their backyard will positively pass the knowledge from next generation and contribute to conservation approach and bio-diversity management.

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