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Ethno-Medicinal Survey of Plants Practiced by Tribal Traditional Healers for Common Health Problems in Bangladesh: A Cross-Sectional Study

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Abstract: Ethno-medicinal knowledge provides valuable insights into the traditional use of medicinal plants by indigenous communities, tribal healers, and folk practitioners, which may contribute to healthcare practices and future drug discovery. This cross-sectional study aimed to document the ethno-medicinal practices of tribal traditional healers in Rangamati district, Bangladesh, focusing on the utilization of medicinal flora in managing common health problems. Data were collected from 20 tribal healers (19 Chakma and 1 Tripura) between January and April 2023 using a pre-tested semi-structured questionnaire through face-to-face interviews. Purposive sampling was applied. Socio-demographic and practice-related data were analyzed using frequency, percentage, tabular, and graphical presentations. The mean age of respondents was 44.95 years, with 95% male participants, 90% from the Chakma tribe, and 95% residing in hilly areas. Most (60%) had secondary-level education, while agriculture was the primary occupation of 55% besides healing practices. The average monthly income was approximately BDT 30,000. A majority (60%) practiced from their own residence and acquired healing knowledge from senior gurus (60%). Locally available medicinal plants were widely used (85%), with formulations such as tablets/boti (80%) often prepared and directly provided to patients, of which 75% were purchased. The healers reported effectiveness in treating ailments such as jaundice, abdominal pain, gout, diabetes, and paralysis. Frequently cited plants included *Curcuma longa*, *Emblica officinalis*, *Terminalia arjuna*, *Terminalia chebula*, *Terminalia bellirica*, *Momordica charantia*, and *Moringa oleifera*. The findings focus the significant role of ethno-medicinal knowledge in primary healthcare among tribal populations of Rangamati. Documenting these practices provides a valuable resource for researchers and policymakers, while also encouraging the exploration of medicinal flora for drug discovery. Further ethno-botanical research with larger samples and laboratory validation of the cited plants is recommended to strengthen the integration of traditional practices into evidence-based healthcare.

Keywords: *Ethno-Medicinal Use, Tribal Healers, Rangamati, Medicinal Plants, Traditional Knowledge.*

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I. INTRODUCTION

➢ *Context and Background:*

Traditional medicine, rooted in the cultural and historical practices of indigenous and tribal peoples, has long played a vital role in global healthcare. The World Health Organization (WHO, 2008) defines traditional medicine as the comprehensive knowledge, skills, and practices based on indigenous beliefs, customs, and experience, used to maintain health and prevent, diagnose, or treat illnesses. Despite the modernization of healthcare systems worldwide, a large proportion of the global population continues to depend on traditional medicine for primary health care, especially in rural and resource-limited settings. For example, it is estimated that nearly 80% of African populations, 70% of Canadians, and considerable segments of populations in China, Australia, the USA, Belgium, and France rely on traditional medicine to some extent (Bharti et al., 2012; Rupani and Chavez, 2018).

Medicinal plants form the backbone of traditional medical systems, providing accessible, affordable, and often effective treatment options. Historically, numerous human illnesses—both common and complex—have been treated

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using plant-based remedies, and medicinal plants remain critical sources for the development of modern pharmaceuticals. Developing countries particularly benefit from these resources, as medicinal plants not only contribute to healthcare but also generate opportunities for economic development through employment and trade (Thirumalai et al., 2009).

Bangladesh is uniquely positioned within the Indo-Chinese biogeographicallysub region, characterized by a diverse climate and environment conducive to the growth of an extensive range of flora, including many species with medicinal value. It is estimated that the country is home to approximately 5,000 plant species, of which about 1,000 have recognized medicinal properties (Kadir, 1990). A variety of natural habitats, from hill tracts to plains and wetlands, support the diversity of plant species and provide the perfect environment for preserving traditional ethno-botanical knowledge (Barua et al., 2001; Hossain, 2005).

In Bangladesh, traditional healthcare is based on the use of medicinal plants, particularly in rural, tribal, and impoverished communities. Plant-based traditional medicine is preferred by about 75–80% of rural residents because it is affordable, accessible, well-known, and accepted by their culture (Ahmed et al., 2009; Rahman et al., 2012; Chaudhury et al., 2001).

Tribal healers use a variety of modalities in the traditional healthcare system, such as Ayurveda, Unani, and indigenous ethnomedicine, which is based on knowledge that has been passed down orally through the generations. Among the numerous native

Tribal peoples in Bangladesh, such as those living in the Rangamati and Khagrachari districts of the Chittagong Hill Tracts, have a long history of using ethnomedical methods. These hill tracts' distinct topography and climate support a rich biodiversity of medicinal plants that are essential to the communities' healthcare (Rahmatullah et al., 2010).

The Chakma tribe, the major indigenous community in Rangamati, is well-known for its customary herbal therapeutic practices. Tribal healers employ a wide range of locally accessible plants to manage numerous health problems including diabetes, hypertension, skin diseases, and digestive problem etc. which they recognize and treat by using plant-based remedies (Rahmatullah et al., 2010). This traditional knowledge goes elsewhere medical practice, representing a existing cultural tradition that symbolizes the insightful connection between indigenous communities and the natural resources nearby them.

Over recent decades, ethno-botanical surveys of medicinal plants have been conducted across various parts of Bangladesh, documenting the use of plants by different tribes and communities. Such studies have been invaluable in compiling data on plant species, their medicinal uses, and preparation methods (Mia et al., 2009; Rahmatullah et al., 2009; Alom et al., 2011).

However, many of these works have focused on regions outside Rangamati or remain limited to simple cataloging of plants without thorough analysis or contextual detail on practices and preparation. Moreover, increasing pressure from deforestation, environmental degradation, and socio-cultural changes threaten the transmission of this traditional knowledge. Younger generations' shows diminishing interest, and modern healthcare systems and pharmaceuticals increasingly replace traditional remedies, placing this cultural heritage at risk of erosion.

Current research attempts to methodically examine and preserve ethno-medical knowledge in recognition of its vital role in biodiversity conservation and healthcare innovation. Finding possible new medications and maintaining bicultural diversity have been made possible by ethno-botany, the study of the interactions between humans and plants, particularly their therapeutic applications (Wintola and Afolayan, 2010; Thirumalai et al., 2009). Comprehensive ethno-medical studies are desperately needed in Rangamati, where such knowledge is still mostly unknown and insecure. Recording the medicinal plants used by tribal healers, as well as how they are prepared and used, will help preserve this priceless indigenous knowledge and provide baseline data for future scientific research.

➢ *Objectives of the Study:*

- *General Objective:*

To conduct a comprehensive ethnomedicinal study of tribal traditional healers in the Rangamati district, documenting their knowledge and practices to preserve indigenous heritage and provide a scientific basis for future pharmacological research.

- *Specific Objective:*

✓ To scientifically document the ethno-medicinal knowledge of tribal traditional healers in the Rangamati district, focusing on medicinal plants used to treat common health problems.
✓ To analyze the extent of medicinal plant use in the community and categorize plant species according to the ailments they treat.
✓ To provide baseline data for future pharmacological, phytochemical, drug discovery, and drug development studies based on medicinal plants.
✓ To contribute to the preservation of indigenous ethno-medicinal knowledge by documenting and disseminating findings within both scientific and local community contexts.
✓ To characterize the socio-demographic profiles and healing practice attributes of tribal traditional healers in Rangamati district.

➢ *Research Gap:*

Although ethno-botanical studies have been conducted among various tribal communities in Bangladesh, including the Garo tribe in Netrokona and other groups in Sherpur and Mymensingh, there remains limited focused research on the traditional medicinal practices of healers in the Rangamati

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district. Most existing reports tend to provide only basic inventories of medicinal plants, lacking critical analyses of their therapeutic uses, preparation methods, and the cultural contexts specific to Rangamati's tribal communities (Mia et al., 2009; Rahmatullah et al., 2009; Alom et al., 2011). Much of the indigenous medicinal knowledge in these communities has been preserved through oral transmission, making it particularly vulnerable to erosion caused by environmental degradation, deforestation, modernization, and a waning interest among younger generations (Hasan et al., 2010; Rahmatullah et al., 2010; Rahman et al., 2013).

Despite widespread recognition of the importance of medicinal plants, there remains a scarcity of systematic and comprehensive studies focusing on the ethno-medicinal knowledge of tribal healers in Bangladesh, especially within the Rangamati district. Prior investigations have largely concentrated on cataloging plant species in different regions (Mia et al., 2009; Rahmatullah et al., 2010; Alom et al., 2011), but have often overlooked detailed evaluations of healing practices, plant preparation techniques, and usage patterns among the traditional practitioners. The preservation of indigenous knowledge systems, predominantly sustained through oral tradition, is critically endangered by contemporary social and environmental pressures (Rahman et al., 2013). In Rangamati, the insufficiency of consolidated ethno-botanical records poses a dual threat: it accelerates the loss of cultural heritage and creates a fundamental barrier to the pharmacological scrutiny and authentication of medicinal plants employed by local practitioners. A rigorous effort to document and analyze this knowledge is therefore a scholarly imperative. Without it, we risk not only a profound cultural hardship but also the closure of promising possibilities for bio-prospecting, the impairment of bio-conservation strategies, and the loss of foundational wisdom for the sustainable management of medicinal flora.

➢ *Justification of the Study:*

Ethno-medicinal knowledge is an invaluable resource for scientific inquiry, drug discovery, and public health policy. Scientifically, ethno-medicinal knowledge provides a treasure trove of clues for drug discovery because many conventional medicines were established from the interaction of plant and its compounds. Like several fundamental researchers, the identification of the preparative techniques, uses, and active ingredients of the formulation and specific plants can give valuable leads for the discovery of bioactive plants that need to be more investigated. In the case of tribal healers in Rangamati, it is necessary to document such practices because the region has been certainly rich in diversity with cultural practices. Systematic recording of the material would facilitate the longevity of indigenous knowledge, make sure the sustainability of the likely plant material and provide clues to developing several new therapeutic agents. Such studies also prove better public health among the vulnerable regions by scientifically proving the traditional methods and tend to integrate the same within the established modern medicine as consequences of recent ethno pharmacological research. Hence, the results indicated that documented information is a crucial practice among healing techniques (Thirumalai et al., 2009; Wintola and Afolayan, 2010).

The research concludes by both conserving an ancient pool of health remedies that might rapidly disappear and linking native traditions to current scientific research. In the end, this interface can result in novel, more complicated remedial approaches. Furthermore, the examination ideally enables the growth of traditional tribal healers with little more influence and recognition among patients, empowering them for cultural autonomy. The article's outcomes also serve as a potential beginning location for research drug testing and a beginning location for ethno-medicinal document preservation.

II. MATERIAL AND METHODS

➢ *Study Design:*

A cross-sectional study was conducted among 20 tribal traditional healers belonging to Rangamati district Bangladesh from January to April 2023.

- *Sampling Technique:*

The purposive sampling technique was used to get information from traditional tribal healers.

- *Sampling Population:*

Tribal traditional healers who were practice traditional medicine in Rangamati districts of Bangladesh. A list of tribal traditional healer was collected by local cooperation and contact with each participant for including with this study. Interested participants written and verbal consent were taken and conducted their face to face interview.

- *Sample Size:*

A number of 20 tribal traditional healers were engaged in this study.

- *Data Collection:*

Data were collected by face to face interview with pre-tested semi-structured questionnaire from 20 tribal healers consisting of 19 Chakma tribes and 1 Tripura tribes.

- *Data Analysis:*

Data were analyzed by SPSS (Statistical Package for Social Science) version 26. The results of the data analysis were presented by frequency, percentage, tabular and graphical presentation form.

- *Ethical Consideration:*

Informed consent (Both verbal and written) was taken from each participant before interview.

➢ *Study Area:*

Rangamati district spans an area of 6,116.11 square kilometers, positioned between 22°27' and 23°44' north latitudes and 91°56' and 92°33' east longitudes. It borders Tripura state of India to the north, Bandarban district to the south, Mizoram state of India and Chin State of Myanmar to the east, and Khagrachari and Chittagong districts to the

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west. According to the 2022 Population and Housing Census, the district houses a population of approximately 647,586 individuals comprising diverse religious and ethnic groups, including Muslims, Hindus, Buddhists, Christians, and others. Rangamati comprises 10 upazilas—Baghaichhari, Barkal, Kawkhali, Belaichhari, Kaptai, Juraichhari, Langadu, Naniarchar, Rajasthali, and RangamatiSadar—along with 49 unions, 162 mauzas, 1,555 villages, and two paurashavas (Bangladesh Bureau of Statistics, 2022).

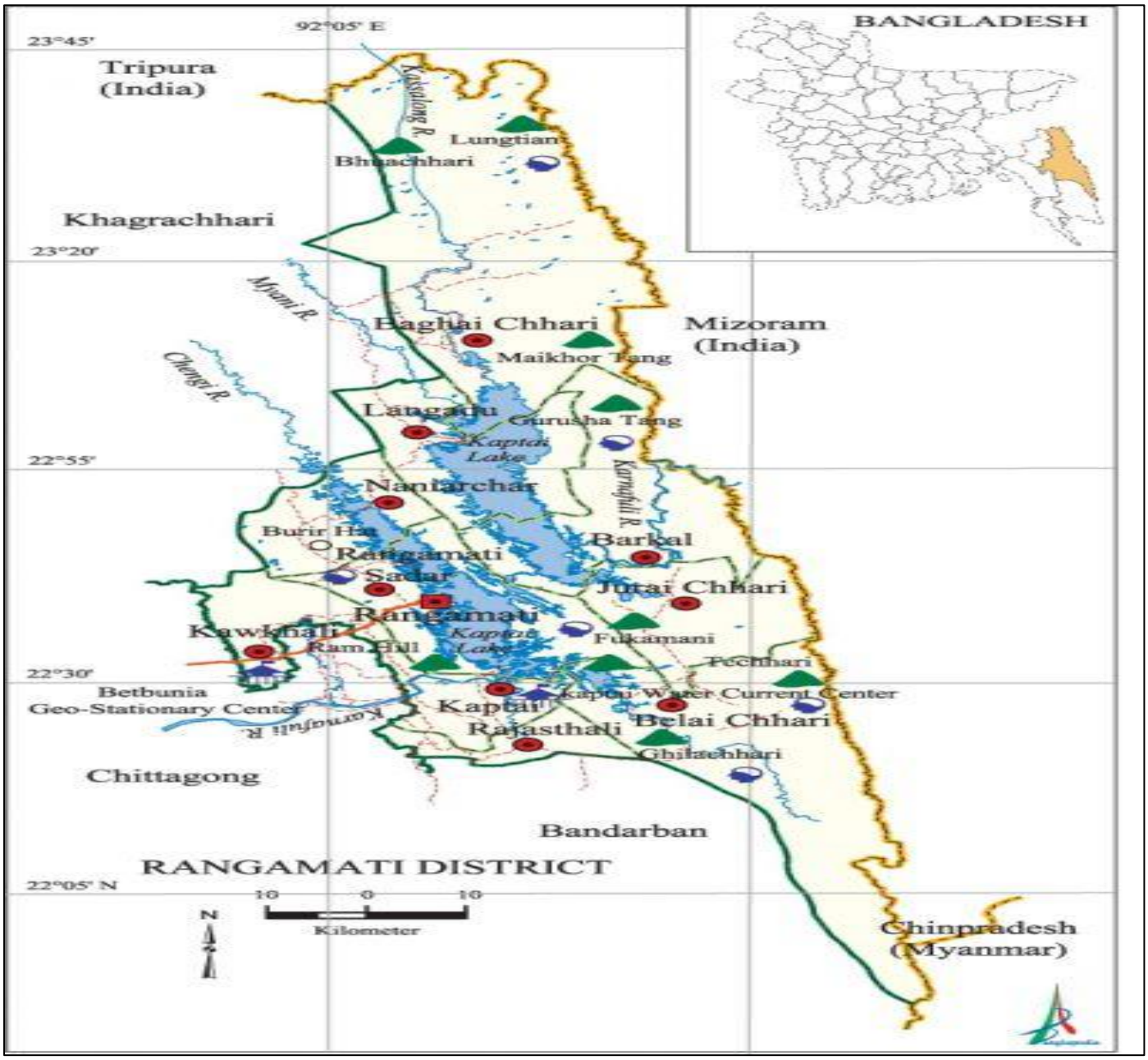

Fig 1 Map of Rangamati District, Bangladesh

III. RESULTS

Table 1 Distribution of the Respondents According to Gender (n=20):

Gender of respondents	Frequency	Percentage (%)
Male	19	95%
Female	1	5%
Total	20	100%

Table 1 revealed the distribution of the respondents according to gender. From the finding it was showed that 95% of the respondents were male and only 5% of the respondents were female.

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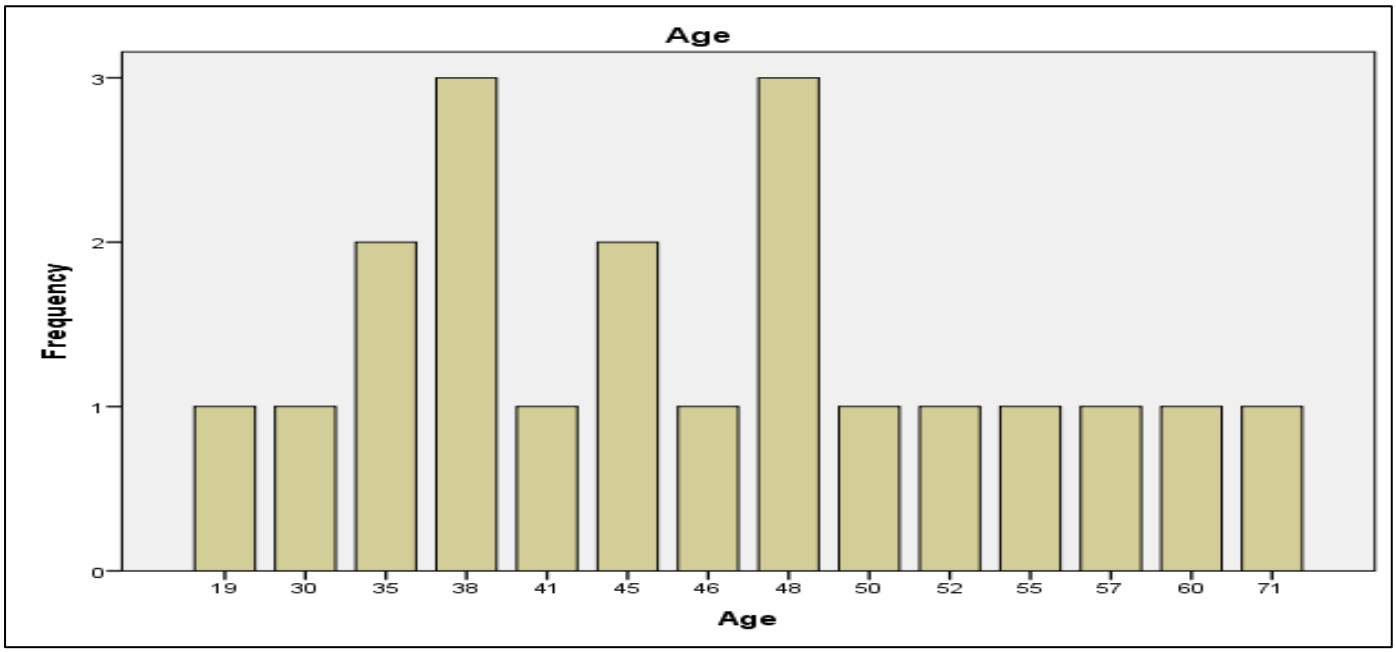

Fig 2 Distribution of the Respondents According to Age (n=20):

Mean age 44.95

Figure 2 showed that age ranges from 19-71 years and mean age was 44.95. Most of the respondent's ages were between 38-48 years.

Table 2 Distribution of the Respondents According to Education (n=20):

Education of the respondents	Frequency	Percentage (%)
Illiterate	2	10%
Primary	5	25%
SSC	12	60%
HSC& Above	1	5%
Total	20	100%

Table 2 stated the distribution of the respondents according to education. Majority 60% of the respondent's education level was SSC followed by 25% was primary, 5% was primary and only 10% of the respondents was no any educational qualification.

Table 3 Distribution of the Respondents According to Income (n= 20):

Respondents income	Frequency	Percentage (%)
Below 10, 000	7	35%
10000-200000	3	15%
21000-30,000	3	15%
31000 & more	7	35%
Total	20	100%

Table 3 showed the distribution of the respondents according to income. Maximum income of the respondents were 31000 taka (35%) and minimum income were below 10000 taka (35%). 30% of the respondents income were between 10000-30000 taka.

Table 4 Distribution of the Respondents According to Occupation Besides Practice (n= 20):

Occupation of respondents	Frequency	Percentage (%)
NGO	1	5%
Business	5	25%
Agriculture	11	55%
Driver	1	5%
Student	1	5%
Only practice	1	5%
Total	20	100%

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Table 4 showed that, majority 55% of the respondents occupation were agriculture followed by 25% were business, 5% were NGO job, driver, and student. Rest of 5% of the respondents engaged with only practice.

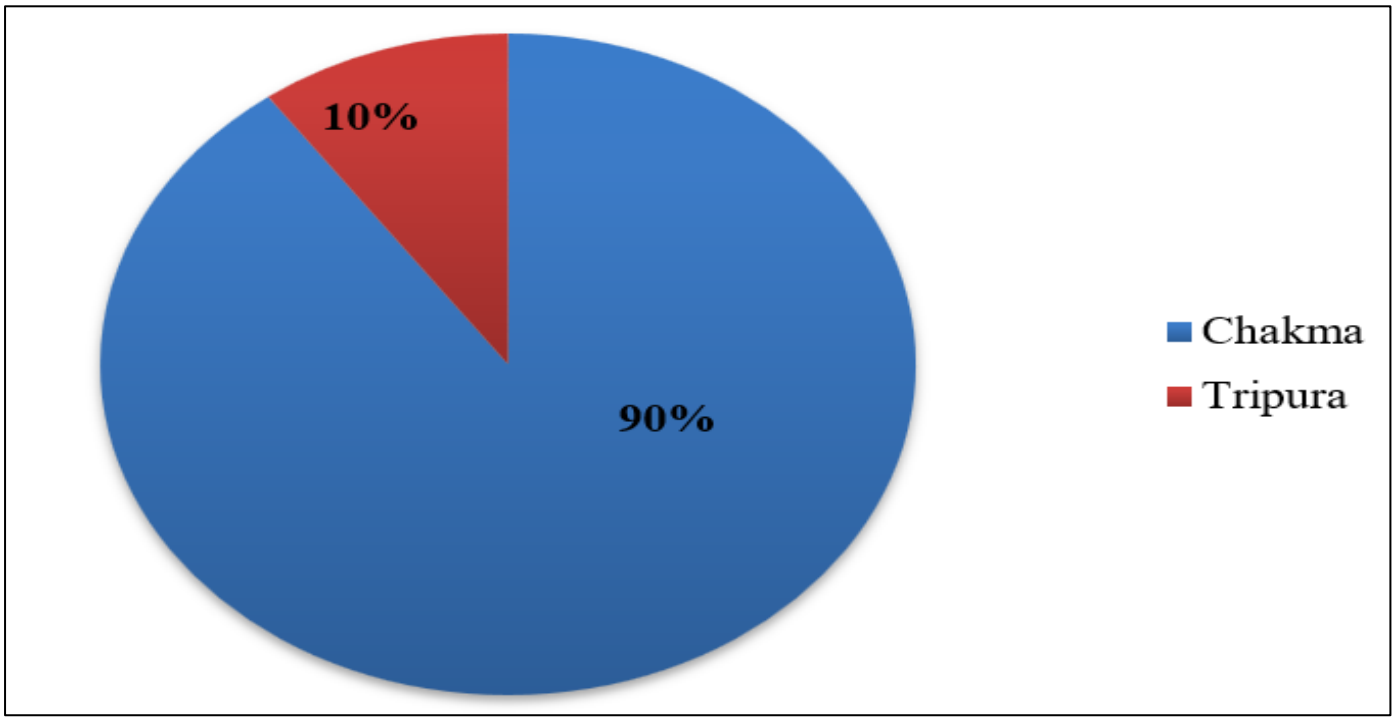

Fig 3 Distribution of the Respondents According to Minority Subgroup (n=20):

Figure 3 stated the distribution of the respondents according to minority subgroup. Majority 90% of the respondents were belongs to Chakma minority subgroup and 10% of the respondents were belongs to Tripura minority subgroup.

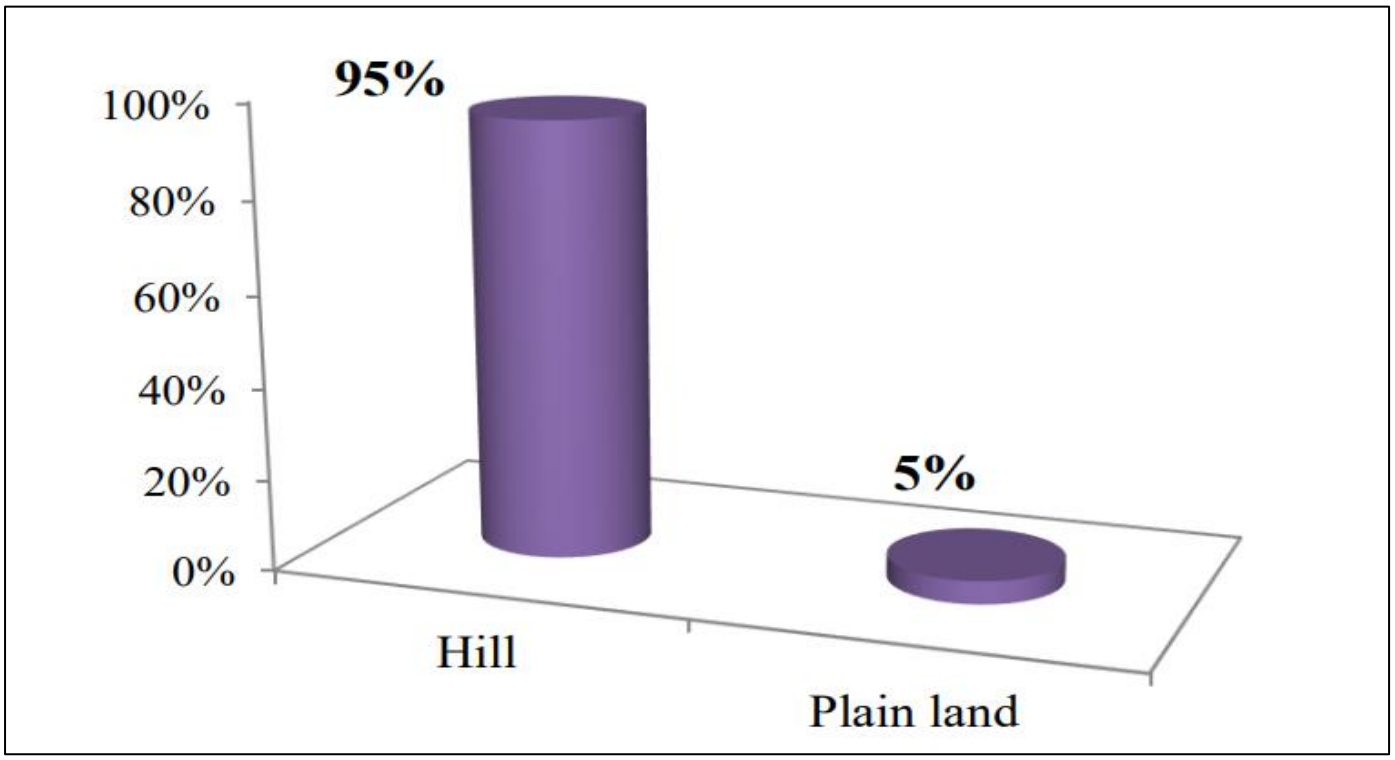

Fig 4 Distribution of the Respondents According to Residence (n=20):

Figure 4 mentioned the distribution of the respondents according to residence. Majority 95% of the respondent's residence was on hill and 5% of the respondent's residence was in plain land.

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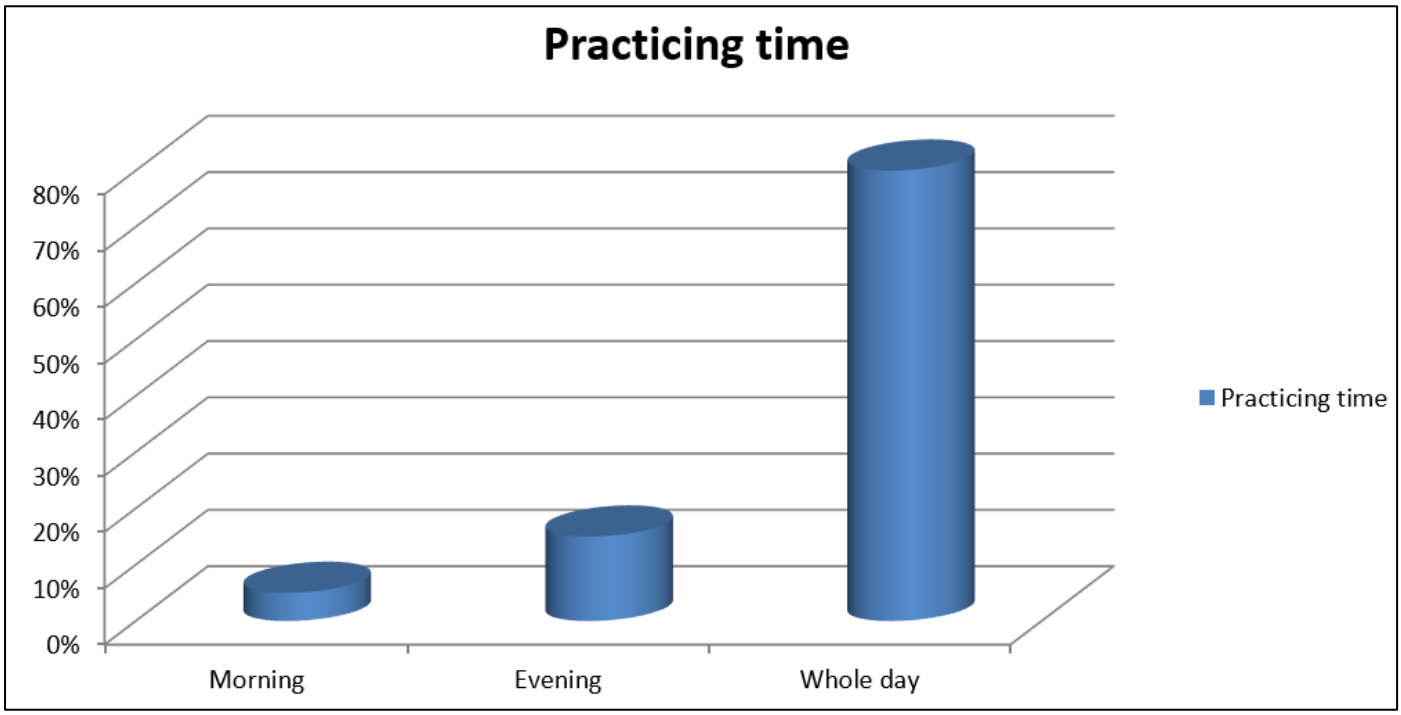

Fig 5 Distribution of the Respondents According to Practice Pattern (n= 20)

Figure 5 showed the distribution of the respondents according to practice time. Majority 80% of the respondents reported that they practice at whole day followed by 15% reported at evening and 5% reported morning respectively.

Table 5 Distribution of the Respondents According to Chamber Type (n= 20):

Chamber type	Frequency	Percentage (%)
Personal chamber	6	30%
Own residence	12	60%
No chamber	2	10%
Total	20	100%

Table 5 revealed the distribution of the respondents according to chamber type. Majority 60% of the respondents reported that they practice at own residence followed by 30% reported in personal chamber and 10% of the respondents reported that they have no chamber for practicing.

Table 6 Distribution of the Respondents According to Practice Type (n= 20):

Practice type	Frequency	Percentage (%)
General	6	30%
Specialized	4	20%
Overall	10	50%
Total	20	100%

Table 6 showed the distribution of the respondents according to chamber type. Majority 50% of the respondents reported that they practice in overall diseases followed by 30% reported general diseases and 20% reported specialized practice.

Table 7 Distribution of Respondents According to Source of Learning Treatment (n=20):

Source of Learning Treatment	Frequency	Percentage (%)
Senior guru	12	60%
Forefather	7	35%
Multiple sources	1	5%
Total	20	100%

Table 7 showed the distribution of the respondents according to learning source. Majority 60% of the respondents reported that they learn from senior guru, 35% from forefather, and 5% from multiple sources.

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Table 8 Distribution of Respondents According to Practicing Experience (n=20):

Experience	Frequency	Percentage (%)
5 years	4	20%
6-10 years	7	35%
11 years and more	9	45%
Total	20	100%

Table 8 showed the distribution of the respondents according to practicing of experience. Majority 45% of the respondents experience was more than 11 years, 35% was 6-10 years and 20% was 5 years.

Table 9 Distribution of the Respondents According to Use of Types of Self-Prepared Formulation(n=20):

Types of self-prepared formulation	Frequency	Percentage (%)
Semisolid	2	10%
Syrup	8	40%
Tablet	16	80%
Powder	5	25%
Oil	2	10%

Table 9 showed the distribution of the respondents according to types of self-prepared formulation. Based on multiple responses majority 80% of the respondents reported that they prepared tablet item formulations followed by 40% reported syrup, 25% reported powder, and 10% reported semisolid and oil respectively.

Table 10 Distribution of the Respondents According to Successfully Practice of Common Disease (n= 20):

Disease treatment	Frequency	Percentage (%)
Jaundice	5	25%
Cut injury	2	10%
Diarrhea	2	10%
Female disorder	3	15%
DM	4	20%
Moles	1	5%
Abdominal pain	4	20%
Snake bite	2	10%
Burn	1	5%
Paralysis	4	20%
Fever	1	5%
Infertility	1	5%
Skin disease	1	5%
Tumor	3	15%
Bone fracture	1	5%
Ulcer	1	5%
Cancer	1	5%
Mental disease	3	15%
Conjunctivitis	1	5%
Stye	1	5%
Epilepsy	1	5%
Toothache	1	5%
Abscess	2	10%
Joint pain	1	5%

Table 10 showed the distribution of the respondents according to diseases treatment in multiple responses. According to findings it was found that majority 25% of the respondents reported that they treat jaundice followed by 20% treat DM, abdominal pain, paralysis, 15% treat female disorder, tumor, mental diseases, 10% treat cut injury, diarrhea, snake bite, abscess and 5% moles, burn, infertility, skin diseases, bone fracture, cancer, fever, ulcer, conjunctivitis, epilepsy, stye, toothache and joint pain.

Table 11 Distribution of the Respondents According to Types of Patients they Treat(n=20):

Types of patients they treat	Frequency	Percentage (%)
Acute	3	15%
Chronic	7	35%

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All	10	50%
Total	20	100%

Table 11 showed the distribution of the respondents according to types of patients they treat. Majority 50% of the respondents reported that they treat all types of patients, 35% reported chronic patients and 15% reported acute patients.

Table 12 Distribution of the Respondents According to Time Taken for Cure(n=20):

Time taken for cure	Frequency	Percentage (%)
1 to 2 week	12	60%
3 week	4	20%
More than 4 week	4	20%
Total	20	100%

Table 12 showed the distribution of the respondents according to time taken for cure. Majority 60% respondents reported they taken 1-2 week for cure diseases, 20% reported 3 weeks and more than 3 weeks for cure diseases.

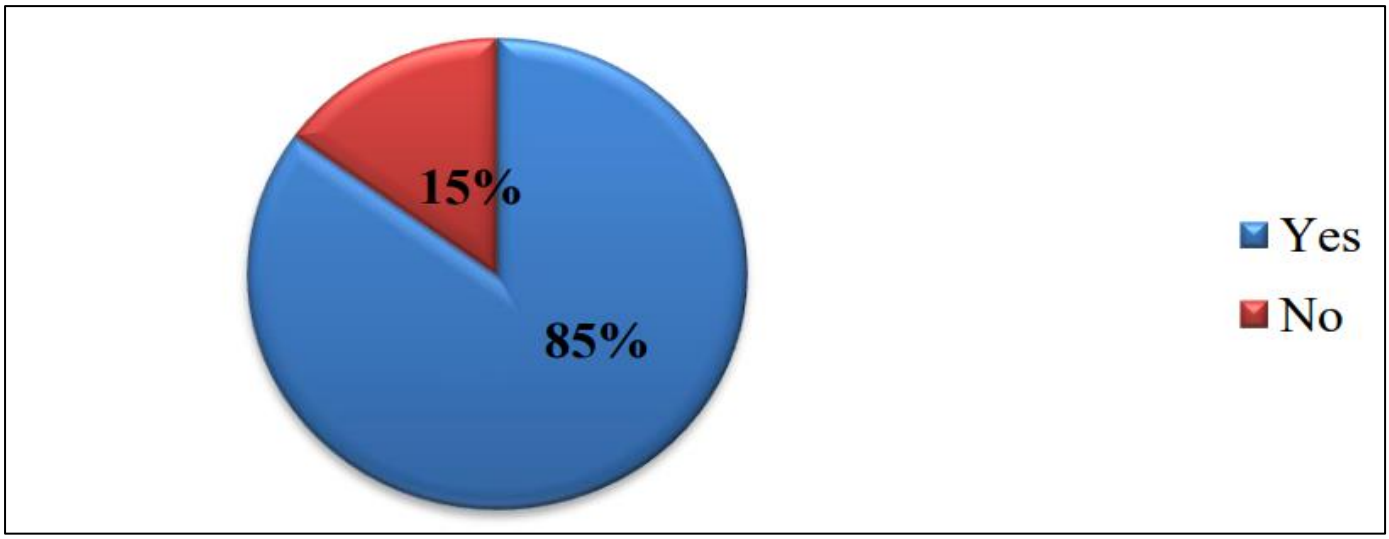

Fig 6 Distribution of the Respondents According to Refer of Patients(n=20)

Figure 6 showed that, majority 85% of the respondents refer patients according to severity and 15% of the respondents never referred patients.

- *Distribution of the Respondents According to Practice of Medicinal Plants (n= 20):*

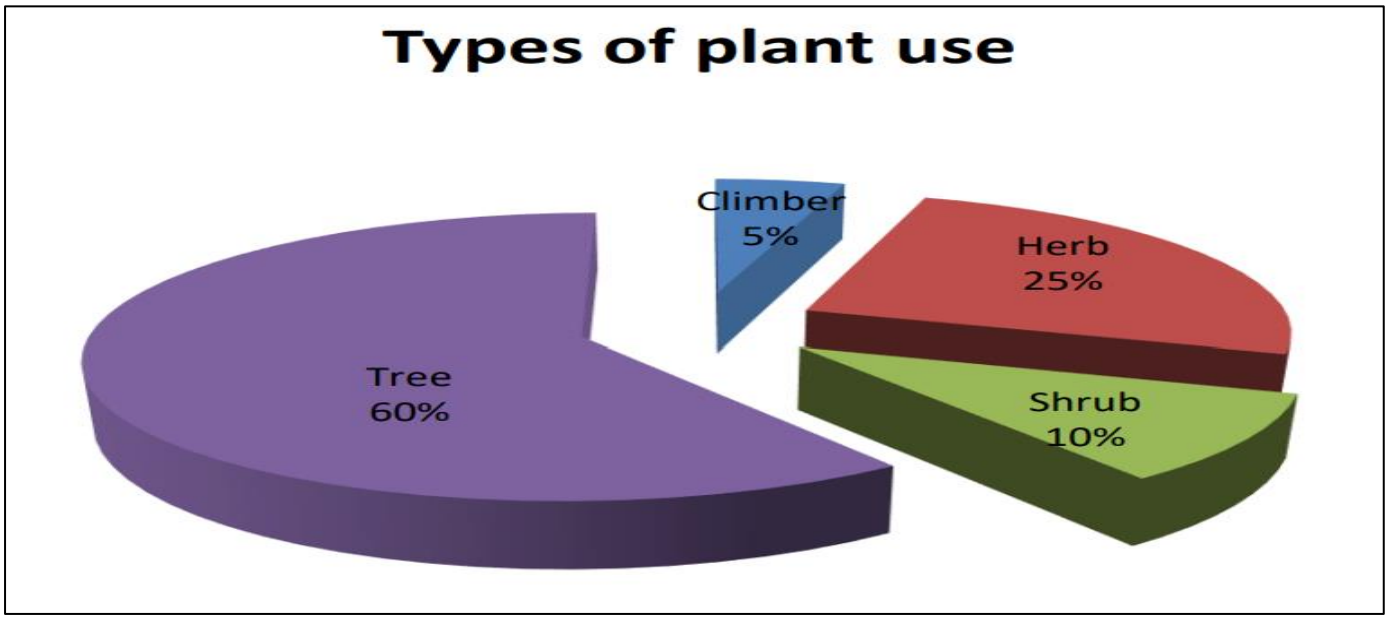

Fig 7 Distribution of the Respondents According to Types of Plant Used (n=20):

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Figure 7 stated that the majority 60% of the respondents used medicinal plants tree, 25% used medicinal plants herbs, 10% used shrub, and 5% of the respondents reported that they used climber's types of medicinal plants.

Table 13 Medicinal Plant Practiced by Tribal Healers

Scientific Name	Family	Local Name	Parts used	Used for
Phyllanthus emblica L.	Euphorbiaceae	Amloki	Fruit	Diabetes mellitus
Terminalia chebula Retz.	Combretaceae	Hortoki	Fruit	Diabetes mellitus
Coccinia grandis (L.) J. Voigt	Cucurbitaceae	Telamon/ Telakucha	Leaf, root	Diabetes mellitus
Momordica charantia L.	Cucurbitaceae	Usta, Korola	Leaf, fruit	Diabetes mellitus
Alstonia scholaris (L.) R.Br.	Apocynaceae	Chaitan	Leaf	Diabetes mellitus
Catharanthus roseus (L.) G. Don	Apocynaceae	Noyontara	Leaf, root	Diabetes mellitus & Cancer
Ficus racemosa L.	Moraceae	Jogadumur	Fruit	Diabetes mellitus
Moringa oleifera L.	Moringaceae	Sajna	Leaf	Diabetes mellitus
Syzygium cumuni (L.) Skeels.	Myrtaceae	Kalojam	Fruit, Seed	Diabetes mellitus
Ichnocarpus frutescens (L.) R.Br.	Apocynaceae	Loilata	Root	Diabetes mellitus
Enhydra fluctuans Lour.	Asteraceae	Helencha	Leaf, stem	Diabetes mellitus
Abroma augusta (L.) L.f.	Sterculiaceae	Ulot-kombol	Leaf, root	Diabetes mellitus & menstrual problems
Saraca asoca (Syn: S. indica) (Roxb.)W.J.de Wilde	Fabaceae	Ashok	Bark	Menstrual problems
Heliotropium indicum L.	Oraginaceae	Hatisur	Leaf	Diabetes mellitus
Mangifera indica L.	Anacardiaceae	Aam	Seed	Diabetes mellitus
Swietenia mahagoni Jacq.	Meliaceae	Mahogany	Seed	Diabetes mellitus
Nerium indicum Mill.	Apocynaceae	Roktokorobi	Leaf, root	Skin diseases
Lawsonia inermis L.	Lythraceae	Mehedi	Leaf, fruit	Skin diseases
Azadirachta indica A. Juss.	Meliaceae	Neem	Leaf, fruit	Skin diseases
Datura metel L.	Solanaceae	Dhutura	Leaf, flower	Skin diseases
Curcuma longa L.	Zingiberaceae	Holud	Rhizome	Skin diseases
Aloe barbadensis Mill.	Aloaceae	Gheetokumari	Leaf	Stomach disorders and Skin diseases
Piper nigrum L.	Piperaceae	Golmorich	Fruits	Indigestion and jaundice
Adhatoda vasica Nees Syn: *Justicia adhatoda L.*	Acanthaceae	Bashok	Leaf	Common cold, cough, asthma and pneumonia
Vitex negundo L	Lamiaceae	Nishinda	Root, Leaf	Asthma, cough, and fever
Averrhoa carambola L.	Oxalidaceae	Kamranga	Fruit	Cold and cough
Zingiber officinale Roscoe	Zingiberaceae	Ada	Rhizomes	Cough, cold, asthma and indigestion
Hemidesmus indicus (L.) R. Br.	Asclepiadaceae	Anantamul	Root	Cough, cold and asthma
Nigelia sativa L.	Ranunculacee	Kalojira	Seeds	Cough, cold and asthma
Ocimum tenuiflorum L.	Lamiaceae	KaloTulsi	Whole plant	Cough, cold, fever and asthma
Menispermum cordifolium Willd.	Menispermaceae	Gulancha	Whole plant	Fever and cough
Andrographis paniculata(Burm.F.)	Acanthaceae	Kalomegh	Whole plant	Liver disease
Aegle marmelos L.	Rutaceae	Bel	Fruit	Diarrhea and dysentery
Centella asiatica (L)	Apiaceae	Thankoni	Whole plant	Diarrhea and dysentery
Psidium guyava L.	Myrtaceae	Peyara	Leaf	Diarrhea and dysentery
Asparagus racemosus	Liliaceae	Satamuli	Root	Aphrodisiac & tonic
Bombax ceiba L.	Bombacaceae	Shimul	Root	Aphrodisiac & tonic
Piper betel L.	Piperaceae	Pan, Betel-leaf	Leaf	Aphrodisiac
Withania somnifera (L.) Dunal.	Solanaceae	Aswagandha	Root	Sexual stimulant
Bacopa monnieri (L.) Pennel	Scorphulariace	Brahmi	Whole plant	Enhance memory
Calotropis gigantean (L) W.T	Asctopiadaceae	Akand	Leaf	Joint pain
Paederia foetida L.	Rubiaceae	Gondhovadal	Leaf	Joint pain and gout
Polygonum orientale L.	Polygonaceae	Bishkatali	Whole plant	Wound healing and ring worm
Rauwolfia serpentina	Apocynaceae	Sarpagandha	Root	High blood pressure and snake bite
Terminalia arjuna (Roxb.ex DC.)	Combretaceae	Arjun	Bark	Heart disease
Musa sapientum L.	Musaceae	Kola	Leaf ash	Moles

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Cissus quadrangularis	Vitaceae	Haarzora	Whole plant	Bone fracture

Findings of this study stated a number of 47 medicinal plants belonging to 34 families were practiced by the respondent tribal traditional healers of Rangamati district, Bangladesh.

Table 14 Distribution of Plant According to Their Family

Family	Number of Plants
Acanthaceae	2
Aloaceae	1
Anacardiaceae	1
Apiaceae	1
Apocynaceae	5
Asclepiadaceae	1
Asctopiadaceae	1
Asteraceae	1
Bombacaceae	1
Combretaceae	1
Cucurbitaceae	2
Euphorbiaceae	1
Fabaceae	1
Lamiaceae	2
Liliaceae	1
Lythraceae	1
Meliaceae	2
Menispermaceae	1
Moraceae	1
Moringaceae	1
Musaceae	1
Myrtaceae	3
Oraginaceae	1
Oxalidaceae	1
Piperaceae	2
Polygonaceae	1
Ranunculacee	1
Rubiaceae	1
Rutaceae	1
Scorphulariace	1
Solanaceae	2
Sterculiaceae	1
Vitaceae	1
Zingiberaceae	2
34 families	47 plant species

This study result showed that among 34 families Apocynaceae families plants are mostly practiced followed by Myrtaceae, Acanthaceae, Cucurbitaceae, Lamiaceae, Meliaceae, Piperaceae, Solanaceae, and Zingiberaceae families for mitigating diabetes mellitus.

Table 15 Distribution of the Respondents Based on Collection of Medicinal Plants by Patients(n=20)

Collection of medicinal plants by patients	Frequency	Percentage (%)
From garden	3	15%
From physician	15	75%
From market	3	15%
Total	20	100%

Finding of the study showed that, majority 75% of the patients collect advised medicinal plants from physician, 15% collect themselves from garden and 15% bought from market.

IV. DISCUSSION

The strength of this ethno-botanical survey lies in its unique methodological approach of conducting face-to-face interviews with tribal traditional healers, many of whom had

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never before participated in such research. This novel interaction generated enthusiasm and openness among the healers, who willingly shared detailed insights into their therapeutic practices, including diagnostic methods, treatment protocols, patient management, and referral systems. Such direct engagement enhanced the richness and authenticity of the collected data. Forty-seven medicinal plant species of 33 families are evidenced in the survey, some of which are native and were easily reachable to the community. The reference to the primary healthcare reveals the dependence of the healers on the available resources. Nevertheless, the study also had some limitations. The most obvious one is the language barrier between the data collectors and respondents. Despite the fact that the local language translator accompanied the survey, some of the technical terms and subtle expression variations can hardly be translated exactly. Therefore, it is possible that the data analysis depends on this factor.

Apocynaceae is the most diverse in terms of species in this investigation. However, studies conducted among tribal healers in Thailand A. Haridasan et al., 2003; Chandra, 2005 found that the family with the highest number of families was Leguminosae. In the same vein EBS a conducted in the Madhupur forest, Bangladesh, found family Fabaceae as the most diverse in terms of species A. Haridasan et al., 2003; Chandra, 2005. These findings demonstrate that there is a geographical and cultural variation in the diversity of medicinal plants.

In addition, the present study concluded that most of the healers acquired crude medicine from trees, with 60% of the respondents using it as their most utilized source. This observation is equally supported in the ethno-botanical study reported in Bangladesh as exhibited in that study by Islam et al. 2014 in table 1 that trees were the dominant source of medicinal value utilized in traditional health care. In contrast, a similar ethno-botanical study conducted in South Africa reported a different phenomenon where herbs comprised 56.3 of traditional medicinal plants utilized by traditional health care practitioners according to the Mahwasane et al., 2013.

In conclusion, the findings of the study verify ethnobotanical evidence based on local contributions and international resources and draw attention to the special cultural aspects of Rangamati tribal healers. Therefore, it is important to align the documentation of indigenous knowledge with the particular context to retain traditions and identify potential orientations for pharmacological research.

V. CONCLUSION

The present study concludes that the tribal healers of Rangamati practiced 47 plant species belonging to 34 families for mitigating various ailments, including diabetes mellitus, obstructive jaundice, paralysis, skin diseases, burns, abdominal problems, and infertility etc. Most of their practices, mainly inherited from senior healers by working as their assistant, and now they are practicing in their local area, which provides accessible and culturally appropriate healthcare in rural hilly areas. In order to preserve traditional knowledge, tribal healing practices, and practicing patterns by indigenous communities needs to are essential for a foundation for future pharmacological research, scientific validation, and integration into an evidence-based healthcare system.

RECOMMENDATIONS

- *Integration with Modern Healthcare:*
  Encourage integration activities between traditional practitioners and medical practitioners to help fill the gap between traditional medicine and modern medicine.

- *Scientific Research & Validation:*
  Phytochemical & pharmacological analysis needs to be carried out on the identified medicinal plants, specifically those that are often used in treating common ailments like diabetes & jaundice.

- *Educational Initiatives:*
  There is a need to offer training initiatives that will improve the scientific knowledge of medicinal plants among traditional practitioners.

- *Economic Support:*
  Initiate programs to uplift the economic status of traditional medical practitioners so that they can gain access to better resources.

- *Conservation Efforts:*
  Encourage sustainable harvesting practices and conservation of medicinal plant species in order to promote diversity as well as ensure that this resource is available to future generations.

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