

Diversity and ethnobotanical use of Traditional Medicinal Plants in Badolchori Vadi Sora Village Common Forests (VCFs) of Rangamati, Bangladesh

Sajib Rudra¹, Md. Helal Uddin Chowdhury¹, Mohammad Omar Faruque^{1*}, Shaikh Bokhtear Uddin^{1*}

¹Ethnobotany and Pharmacognosy Lab, Department of Botany, University of Chittagong, Chattogram 4331, Bangladesh; rudrasajibcu89@gmail.com (S.R.); helaluddinchowdhurycu@gmail.com (M.H.U.C.); omf@cu.ac.bd (MOF) and roben68@gmail.com (SBU)

Corresponding Author: Mohammad Omar Faruque (omf@cu.ac.bd) and Shaikh Bokhtear Uddin (roben68@gmail.com)

Abstract

Village Common Forest (VCF), an example of sustainable forest management system, is a unique conservatory system developed by the Chittagong Hill Tracts indigenous communities to conserve their native species and as a part of the water shade management of the area. Usually the biodiversity of Village common forest (VCF) is rich than any other part of the area or government managed forest. This study aims to explore the diversity status of medicinal plants as well as vascular plants and their therapeutic usage practiced by indigenous communities at these VCFs of Rangamati district. The diversity of traditional medicinal plants used by the Chittagong Hill Tracts' indigenous communities of Badolchori Vadi Sora VCFs were determined through quantitative analysis by stratified random sampling plots (10 m x 10 m for tree, 5 m x 5 m for shrub & liana, and 2 m x 2 m for herbs & climbers). Phytosociological characters of medicinal plant species were evaluated by analyzing the frequency, density, abundance and Importance Value Index (IVI). A semi-structured questioner was maintaining to collect ethnobotanical information from local traditional healers (Boiddha), herbalist and community experts. A total of 209 species distributed to 145 genera under 65 families were documented. Of them, 181 species were found to be used by the local people for the treatment of about 379 diseases/ailments including fever, rheumatism, dysentery, jaundice, boils, diarrhea, gout, asthma etc. Different plant parts were used for medication purposes while leaves were reported as most utilized plant part followed by roots and stem. Diversity indices revealed that the study area was rich in diverse medicinal plant. In all parameter, herbs were dominant over trees, shrubs and epiphytes. Collected voucher specimens have been processed with standard herbarium techniques and deposited in the Chittagong University Herbarium (HCU) with accession number.

Keywords

Biodiversity indices, Phytosociological attributes, Village Common Forest, Traditional medicine and medicinal plants

1. Introduction

Forests hold an important part in the world's enormous ecosystem, acting as the habitat for a huge proportion of animals and plants, and functioning as the world's greatest site for biodiversity conservation (Brockerhoff et al., 2013). Because of overpopulation, rising biotic and abiotic disturbances, forests throughout the world are deteriorating into fragmented marshland and grassland resulting in biodiversity loss (Lindenmayer, 2009; Uddin et al., 2019). Where tropical evergreen forest constitutes approximately 52% of the world forest regarding conservation of biodiversity (Anbarashan & Parthasarathy, 2013). Moreover, there are also evidence that it might play a significant role in keeping global warming under 2°C in line with the Paris Agreement on Climate Change (Griscom et al., 2017). These forests, on the other hand, are getting extensively vulnerable as they become narrower, simpler, steeper, and drier. More

than 150 million hectares of land for human basic needs were removed between 1980 and 2012 (Edwards et al., 2019).

Bangladesh is a tropical land with natural forests 84% and 16% plantation, making up 2.253 million hectares of forest area with many forest kinds and notably wetlands, evergreen, semi-green, moist lagoon and mangrove forests (Jannat et al., 2018). Of them, Chittagong Hill Tracts (CHT) is a most biologically diverse place of the country, this is mainly due to the geo-climate, unique location of the CHT, which covers a very large part of the forest land (40%) and ensures 80% of the total biodiversity of the country (Mukul et al., 2012; Rahman, Mahmud et al., 2016). CHT are facet of the greater Hindu Kush Himalayan mountain ranges located in the Bangladesh's south-eastern region and comprise of three hilly areas Rangamati, Khagrachari, and Bandarban encompassing 13,294 km²(Alam et al., 2019; Chowdhury et al., 2018a) and inhabited to 12 indigenous communities. In the CHTs, four fifths of the forest land were proclaimed as reserved forests, protected areas or national forests throughout and afterwards the British colonial period, rendering it off-bound for indigenous communities (Misbahuzzaman & Smith-Hall, 2015). The indigenous communities have planned conserving their precious natural wealth according with their traditional strategy to resource management, called Mouza Reserves or Village Common Forest (VCF) (Chowdhury et al., 2018b). This community based forest management such as VCF has mounting evidence of better management practices than public sector or government institutions facilitate by mutual interaction of developing organizations and researchers with lesser law enforcement agencies involvement (Balooni & Inoue, 2007; Santika et al., 2017; Vickers, 2017).

Village Common Forests (VCF) are naturally rejuvenated, small forests with an extent between 20 and 120 acres that are commonly referred to as Para bon, Mouza bon, Reserve or Mouza reserve. The number of VCFs in the CHTs remained disputed, although it was found to be between 300 and 800 in literature (Islam et al., 2009; Saha, 2010). Where, each Mouza has a headman who was portrayed with management of the Mouza according to of 1900's CHT regulation (Uddin et al., 2020). Indigenous people have deeper relationship with this Mouza management from time immemorial in a margin of 200 long more year times. For housing construction, medicine, wild fruits and other sustainable bio-mass requirements of underprivileged hilly villagers, VCFs represent a wealth source of human basic needs for their livelihood (Jashimuddin & Inoue, 2012a). Historically, these indigenous peoples of CHT lived on top hills sides where VCF surrounded their dwellings, or some tribes managed it remote location or one sided from the community; by doing so, they maintained their harmonious relationship with natural richness for ages (Chakma et al., 2020). From ancient era, this underprivileged people also profoundly reliable on forest resources for their medication system, yet they continue to be diagnosed with many of the most lethal diseases using natural resources. Which can be a valuable asset and a cost-effective alternative to synthetic medication. Therefore, several scholarly papers and recent research have mirrored these healthcare principles. For example, to cure 98 maladies, one study quantified 159 medicinal plants in 18 distinct locations of the Bandarban area, organized into 132 genera and 62 families (Faruque et al., 2018). Another research found that the Pangkhua people of Rangamati district targeted 117 plant species from 104 genera and 54 families as part of their remedial healthcare system (Faruque et al., 2019). 40 medicinal plant species belonging to 29 families were utilized by the Murong people of Khagrachari region to cure a wide range of illnesses (Kabir & Saha, 2014). Khumi and Tripura communities in Thanchi Upazila in Bandarban were found to employ 116 plants and bushes from 50 different families to alleviate 91 different ailments (Motaleb et al., 2015). Following that, 50 plant species enlisted from Chakma community (Uddin et al., 2014), 66 species under 38 families from Marma community (Faruque & Uddin, 2014), and 82 species under 51 families from Rakhaing community (Uddin et al., 2013) were used to combat a variety of illnesses. Modern approaches have verified most of those uses, and some of them have gone through clinical trials to be used in current healthcare. More precisely, as compared to the present pharmaceutical system's "one target and one drug" strategy, this plant-based therapy has synergistic effects of 'multi-target and multi-drug' benefits (Guo et al., 2019; Rudra et al., 2020b). As reflection those efficacy, this indispensable plants are conserved in their territory or surrounding areas or

in VCF for their existence. But unfortunately, as a result of shifting cultivation and over-exploitation caused soil erosion, the government's strategy of settling lowland or plain land settlements, community ignorance and the disintegration of the traditional system; the quantity and quality of VCF has declined over time (Halim et al., 2007; Jashimuddin & Inoue, 2012a). However, some of the light of successful VCF practices for the conservation of endangered species have been reported in China and Ethiopia namely village *fengshui* forest and Church forest (Hu et al., 2011; Wassie et al., 2010). Additionally, fresh water abundance, medicinal plants, timber, bamboo and cultural beliefs are some of the elements driving the preservation of VCFs (Baten et al., 2009).

Taken together, we aim to provide a thorough documentation of the ethno-medicinal uses of medicinal plants found in VCFs in CHTs, and to determine the phytosociological diversity indices of those documented plants.

2. Methodology

2.1. Study area

A VCF, Badalchori Vadi Sora under sub district Barkal in Rangamati district at Bangladesh, is selected for the phytosociological diversity analysis of medicinal plants that traditionally used by ethnic people as their primary healthcare management (Figure-1). Rangamati is home for a number of indigenous group namely Chakma, Marma, Tanchangya, Tripura, Chak, Khumee, Luchei, Pankhoa, Rieng, Khumi, Mro, Santal, Monipuri, Bome, Kheyang, Murang and others that constitutes 59.76% of total population where density of population is 101 per km² (BBS, 2011). This district climatological properties is differ than country's other district due to its geological position, whereas the temperature range from 34.6°C to 13.4°C with 3031mm of annual rainfall (Khatun et al., 2016). This VCF located in the south-eastern part of Bangladesh at 22° 56' 1.386"N 92° 17' 10.692" E co-ordinates in Rangamati.

2.2. Study framework and ethnobotanical documentation

For the assessment of the medicinal plants, Stratified random sampling method was adopted. The VCF was split into three segments depending on three topographical placement category namely bottom, mid, or top slope, and from each location five plots were selected. A total of 15 plots were generated in Badalchori Vadi sora VCF with 10m × 10m quadrat plot size. We studied a 'Dictionary of Plant Names of Bangladesh' book and www.plantlist.org to examine plant nomenclature of the recorded species (Pasha & Uddin, 2013). In collaboration with local guides and a taxonomist, all the plant species were recognized along with plant habit types were scrupulously documented. Communities were interviewed in clusters or personally for ethnobotanical documentation followed by semi-structured question technique, and local kabiraj or boiddha (traditional healers) were tracked down to gather published pamphlets and therapeutic information regarding plants. Market and checklist interview were therefore conducted to validate the precision of documentation delivered by the community members, as well as herbalists.

2.3. Analytical framework for VCF

Badalchori Vadai Sora VCFs were used to construct phytosociological characteristics and diversity matrices for each of the 15 plot. A number of phytosociological characteristics were computed. These included relative density (RD), relative frequency (RF), relative abundance (RA), and important value index (IVI). For determining the abundance, evenness, and richness of the species in the intended VCF study area, we considered four formula related to diversity indices namely Shannon-diversity Wiener's index (H), Simpson's diversity index (D) and the species evenness index (E) (**Table 1**). Upon

authentication, all plant species from the studied region were culled and processed for herbarium specimen following standard herbarium protocol and a voucher specimen of that species deposited in the Chittagong University Herbarium (CTGUH) across an accession number for future reference.

Figure-1: Map of the study area.

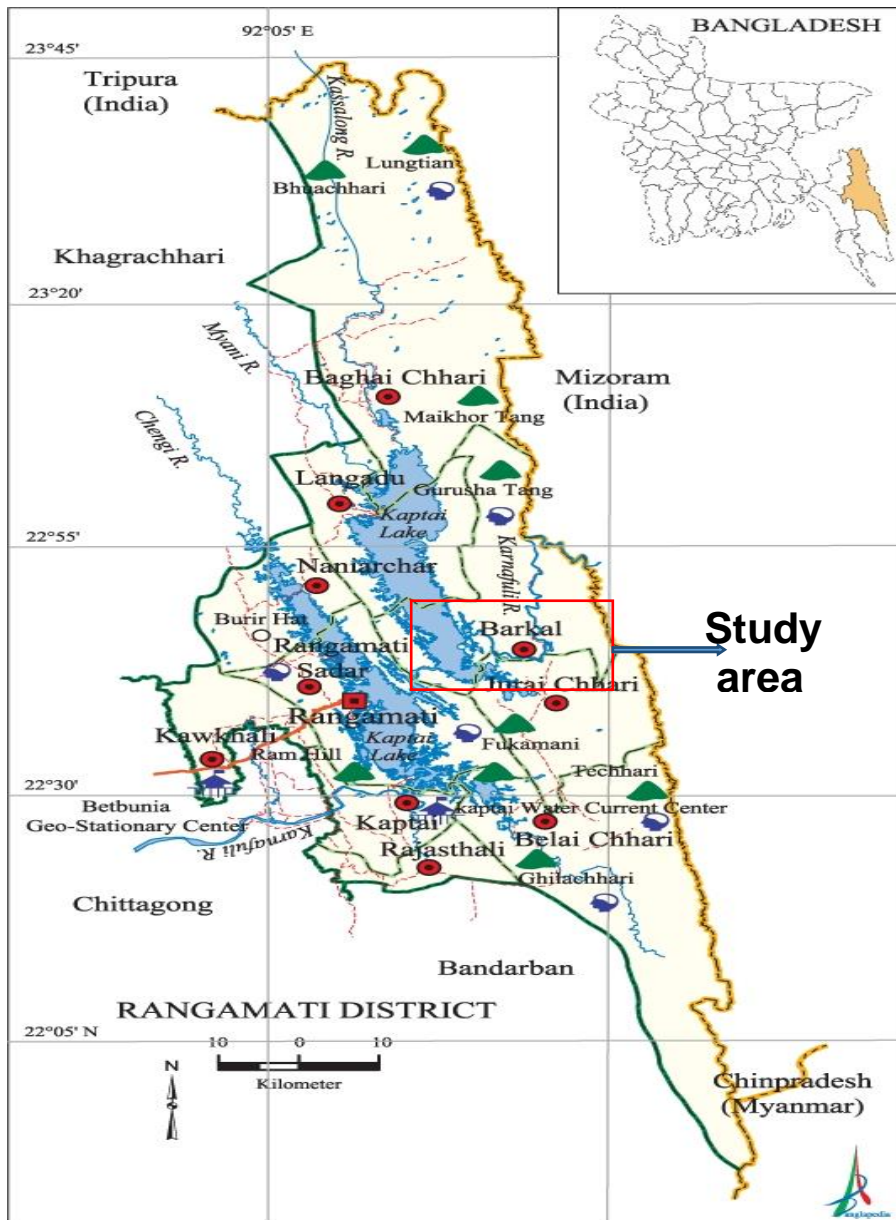


Table 1: Statistical formula for phytosociological characteristics determinants and diversity indices

Attributes	Equations	Citations	Variable interpretation
Frequency (x)	$x = \frac{c}{b}$	(Rudra et al., 2020a)	a= Number of members of a certain species in each plot b = the total number of plots examined c=total number of plots where the species is found. n=A species' population size is in number N=total number of individuals of all the species P = n/N S = total number of species
Abundance (y)	$y = \frac{a}{c}$	(Rudra et al., 2020a)	
Relative Density (RD)	$RD = \frac{n}{N} \times 100$	(Dallmeier et al., 1992)	
Relative Frequency (RF)	$RF = \frac{x_i}{\sum x_i} \times 100$	(Dallmeier et al., 1992)	
Relative Abundance (RA)	$RA = \frac{y_i}{\sum y_i} \times 100$	(Shukla & Chandel, 2000)	
Importance Value Index (IVI)	$IVI = RD + RF + RA$	(Rudra et al., 2020a)	
Shannon-Weiner diversity index (H)	$H = - \sum P_i (\ln P_i)$	(Hill, 1973)	
Simpson diversity index (D)	$D = \sum P_i^2$	(Colwell, 2014)	
Species evenness index (E)	$E = \frac{H}{\log(S)}$	(Pielou, 1966)	

3. Results

3.1. Biodiversity and the uses of medicinal plants

A thorough out exploration of Badalchori Vadi Sora revealed the presence of a huge number of diversify medicinal plants with enlisting their uses as remedial to variable ailments. A total of 209 plant species were documented from the studied area. Of them, medicinal plant species were 181 species divided into 145 genera and 65 families. Their phytosociological attributes notably relative density (RD), relative frequency (RF), relative abundance (RA) and importance value index (IVI) as well as plants conservation status, habits, plant parts used for the treatment and theirs application was elucidated in the **Table 2**.

Where most number of 10 species was belonged to family Euphorbiaceae that detected as most prominent plant family in the current VCF. In that order, Asteraceae and Rubiaceae was the second and third most dominant family by obtaining 9 and 8 species, respectively; sequentially Araceae, Fabaceae and Zingiberaceae were the third most each with 7 species. When it comes to the species density parameter, RD indicates that *Melocanna baccifera* had the greatest RD (9.15%) trailed by *Colocasia esculenta* (6.32%) and *Adiantum lunulatum* (5.62%). Among all the recorded medicinal plants in the VCF, most frequently found species was the *Thunbergia grandiflora* (3.2%) preceded by *Boehmeria nivea* (2.4%) and computed 2.13% for *Adiantum lunulatum*, *Cheilocostus speciosus*, *Colocasia esculenta*, *Curculigo orchoides* and *Melocanna baccifera*. On the other hand, a relative abundance (RA) study showed that *Panicum repens* and *Panicum maximum* were the most common with accounting 3.91% ratio in the VCF after that occurred *Melocanna baccifera* (3.04%) and *Molinaria capitulata* (1.95%).

Table 2: Enumeration of medicinal plant species identified from Badalchori Vadi Sora Village Common Forests (VCFs) in Rangamati District, Chittagong Hill Tracts, Bangladesh

S. N.	Scientific Name	Family	Habit	Local Name	RD	RF	RA	IVI	Status*	Parts used*	Ethno-medicinal value	Acc. No
1	<i>Abelmoschus moschatus</i> Medik.	Malvaceae	Shrub	Mushakdana	0.73	0.53	0.98	2.25	NE	F, R	Urinary trouble, Itch, anaemia, asthma, cold fever, cough, embroyopathy, headache, pneumonia, tonsillitis	CTGU H-SBF 021
2	<i>Achyranthes aspera</i> L.	Acanthaceae	Shrub	Apang	1.25	1.07	0.83	3.15	NE	WP, L, R	Gastric, pneumonia, in bites of poisonous animal, jaundice, urinary trouble, abortion, Asthma, bronchites, carbuncle, constipation, cough, diabetes, epistaxis, gastric tumor, gout, gynecological disease, hook worm infestation, hysteria, illhealth, lipoma, liver cancer, lumps in the throat, painful micturation, pneumonia, respiratory troubles, spermatorrhoea, tuberculosis	CTGU H-SBF 025
3	<i>Acmella alba</i> (L'Hér.) R.K.Jansen	Asteraceae	Herb	Sada acmella	0.37	0.27	0.98	1.61	NE	L, R, F	Toothache, throat and dental infections, leucorrhoea	CTGU H-SBF 023
4	<i>Actephila excelsa</i> (Dalzell) Müll.Arg.	Phyllanthaceae	Tree	Lalsa	0.04	0.27	0.1	0.4	LC	St, L	Abortion, fever, indigestion	CTGU H-SBF 024
5	<i>Adiantum philippense</i> L.	Adiantaceae	Herb	Kalijhat	5.62	2.13	1.87	9.63	NE	WP	Febric convulsion, lipoma, ophthalmia, dysentery, ulcers, erysipelas, burning sensation, epileptic fits, strangury, fever	CTGU H-SBF 022

6	<i>Ageratum conyzoides</i> (L.) L.	Asteraceae	Herb	Fulkuri	0.88	0.53	1.17	2.59	NE	L, R, PJ	Dysmenorrhea, leishmaniasis, stops bleeding, fever, epistaxis, malaria, hyper acidity, bruise, eczema, gastric ulcer, headache, hysteria, jaundice, dysmenorrhoea, leucorrhoea, piles, cough, sterility, stomachache, vertigo, gastric tumor	CTGU H-SBF 026
7	<i>Albizia chinensis</i> (Osbeck) Merr.	Mimosaceae	Tree	Chakua koro	0.07	0.53	0.1	0.7	NE	B	Menostaxis, cuts, scabies, skin diseases	CTGU H-SBF 035
8	<i>Albizia procera</i> (Roxb.) Benth.	Mimosaceae	Tree	Koro	0.29	0.27	0.78	1.34	LC	L, B	Insecticide, ulcers, intestinal worms, anal fissure, leprosy	CTGU H-SBF 029
9	<i>Alocasia cucullata</i> (Lour.) G. Don	Araceae	Herb	Bishkachu	0.11	0.27	0.29	0.67	NE	Rh	Abdominal pain, asthma, colic, gastric tumor, leucoderma, paralysis, rheumatism	CTGU H-SBF 030
10	<i>Alpinia malaccensis</i> (Burm.f.) Roscoe	Zingiberaceae	Herb	Amla elach	0.7	0.27	1.86	2.82	DD	Rh	Sores, stomachache, indigestion	CTGU H-SBF 031
11	<i>Alpinia nigra</i> (Gaertn.) B.L. Burtt	Zingiberaceae	Herb	Jongli ada	1.25	0.8	1.11	3.16	LC	Sh, L, Rh	Vomiting, Jaundice, gastric ulcers, lumbago, rheumatism, bronchitis, dyspepsia, impotence	CTGU H-SBF 032
12	<i>Alpinia zerumbet</i> (Pers.) B.L. Burtt & R.M. Sm.	Zingiberaceae	Herb	Bara elachi	1.03	1.87	0.39	3.3	DD	Rh	Rheumatic pain, fever	CTGU H-SBF 033
13	<i>Alstonia scholaris</i> (L.) R. Br.	Apocyanaceae	Tree	Chatim	0.29	0.27	0.78	1.34	LC	B, PJ, Sap, G, R	Jaundice, dysentery, helminthiasis, paralysis ulcers, rheumatism, constipation, gallstone, lipoma, remitting fever, rheumatoid arthritis, stomachache	CTGU H-SBF 034

14	<i>Amischotolype mollissima</i> (Blume) Hassk.	Commelinaceae	Herb	Molisima	0.07	0.27	0.2	0.54	NE	RJ	Malarial fever, epilepsy, hyperacidity, traumatic injury	CTGU H-SBF 027
15	<i>Amomum aromaticum</i> Roxb.	Zingiberaceae	Herb	Alachi	0.11	0.27	0.2	0.67	NE	L, R, St	Shoulder ache, enteric disease, intestinal difficulties, indigestion, vomiting, biliousness, bowels	CTGU H-SBF 036
16	<i>Amomum subulatum</i> Roxb.	Zingiberaceae	Herb	Barlock	0.29	0.53	0.39	1.22	DD	F	Cough, vomiting	CTGU H-SBF 037
17	<i>Amorphophallus bulbifer</i> (Roxb.) Blume	Araceae	Herb	Jongle-ol	0.26	0.53	0.34	1.13	NE	Blb	Insect bite, warts	CTGU H-SBF 038
18	<i>Angiopteris evecta</i> (G.Horst) Hoffn.	Marattiaceae	Fern		0.07	0.27	0.2	0.54	NE	Rh	Carbuncle, lipoma, liver cancer, seminal emission, foot wound, arthritis, blood cancer, beriberi	CTGU H-SBF 039
19	<i>Angiopteris helferiana</i> C.Presl	Marattiaceae	Fern	Raj dhel\ki	0.07	0.27	0.2	0.54	NE	Rh	Dysentery, infection, scabies, muscle pain	CTGU H-SBF 078
20	<i>Antidesma buniis</i> (L.) Spreng.	Euphorbiaceae	Shrub	Banshialbuka	0.15	0.53	0.2	0.88	LC	L, FJ	Heart disease, coughs, syphilis, gonorrhoea, high blood pressure	CTGU H-SBF 079
21	<i>Aphanamixis polystachya</i> (Wall.) R.Parker	Meliaceae	Tree	Pitraj	0.07	0.27	0.2	0.54	LC	B, OS, F	Astringent, liniment, rheumatism, tumor, abdominal complaints, spleen in liver, ulcers	CTGU H-SBF 080
22	<i>Ardisia colorata</i> Roxb.	Myrsinaceae	Herb	Bangla oak	0.44	0.53	0.59	1.56	NE	RJ, L	Diarrhoea, cough, poulticing during rheumatism or lumbago, liver diseases	CTGU H-SBF 081
23	<i>Argyrea splendens</i> (Roxb.) Sweet	Convolvulaceae	Climber	Chottorupatola	0.29	0.53	0.39	1.22	NE	R, LJ	Ulcers, rheumatism	CTGU H-SBF 082

24	<i>Aristolochia tagala</i> Cham.	Aristolochaceae	Climber	Harin-kan shak	0.07	0.27	0.2	0.54	NE	L, R, St, F	Abdominal pain, Rheumatic pain, tumors, fever, dysentery, snake bite, traumatic pain	CTGU H-SBF 083
25	<i>Baccaurea ramiflora</i> Lour.	Euphorbiaceae	Tree	Lotkon	0.07	0.53	0.1	0.7	NE	B	Gastric ulcer, diarrhea, jaundice, ureterolithiasis, flatulence	CTGU H-SBF 084
26	<i>Bambusa bambos</i> (L.) Voss	Poaceae	Herb	Kanta bans	1.03	0.53	1.37	2.93	NE	St, L, R, Spr, B	Laxative, diseases of blood, leucoderma, inflammation, strangury, cough, cold, consumption, asthma, emmenagogue, bleeding	CTGU H-SBF 085
27	<i>Begonia roxburghii</i> (Miq.) A.DC.	Begoniaceae	Herb	Gonirakto	0.74	0.53	0.98	2.25	NE	WP	Tongue abnormalities, Jaundice, dysentery	CTGU H-SBF 086
28	<i>Blumea lacera</i> (Burm.f.) DC.	Asteraceae	Herb	Barakuksh ima	0.11	0.27	0.29	0.67	NE	L, R	Rheumatism, bone fracture, dropsy, cholera, fever	CTGU H-SBF 087
29	<i>Boehmeria nivea</i> (L.) Gaud.	Urticaceae	Shrub	Kankhura	1.95	2.4	0.58	4.92	NE	L, St	Wound, septic abscess	CTGU H-SBF 130
30	<i>Bombax ceiba</i> L.	Bombaceae	Tree	Shimul	0.04	0.27	0.1	0.4	LC	B, G, R	Leucorrhoea, fever, diarrhoea, dysentery, menorrhagia and cough, biliousness, impotence, emetic	CTGU H-SBF 131
31	<i>Bridelia stipularis</i> (L.) Blume	Euphorbiaceae	Tree	Harinhara	0.44	1.07	0.29	1.8	LC	L	Allergies, ameobic dysentery, chest pain, constipation, diarrhoea, leucoderma, strangury	CTGU H-SBF 132
32	<i>Brownlowia elata</i> Roxb.	Tiliaceae	Tree	Moss	0.07	0.53	0.1	0.7	NE	B	Poisonous insect sting, diarrhea, syphilis	CTGU H-SBF 133
33	<i>Byttneria pilosa</i> Roxb.	Sterculiaceae	Climber	Harjora lata	0.68	0.8	0.55	1.98	NE	St, L	Bone fracture, boils, scabies, dandruff, lice infestation, rheumatism, snake bite, syphilis	CTGU H-SBF 134

34	<i>Caesalpinia digyna</i> Rottler	Caesalpiniaceae	Climber	Kochoi	0.26	0.53	0.34	1.13	NE	R	Phthisis, scrophulous affections, conjunctivitis, lipoma	CTGU H-SBF 135
35	<i>Callicarpa arborea</i> Roxb.	Verbenaceae	Tree	Bormala	0.07	0.53	0.1	0.7	LC	St, R, L, B	Diarrhoea, bone fracture, worm, gout, epilepsy, fever, gingivitis, ill health, malaria, menorrhoea, rheumatism	CTGU H-SBF 136
36	<i>Cayratia trifolia</i> (L.) Domin	Vitaceae	Shrub	Amol lata	0.07	0.27	0.2	0.54	NE	L, WP	Heart disease, abdominal pain, fever	CTGU H-SBF 137
37	<i>Cheilocostus speciosus</i> (J.König) C.Specht	Costaceae	Herb	Kemak	1.62	2.13	0.54	4.29	LC	L, R, Rh	Boils, paralysis, seminal emission, headache, osteoarthritis, stomachache, itch, snake bite, skin diseases, contraceptive, otitis, rabies, stomachache, jaundice, menstrual disorder, urinary inflammation, paralysis, fever, cough, dyspepsia, worms, skin diseases, rheumatism, food poisoning,	CTGU H-SBF 138
38	<i>Chromolaena odorata</i> (L.) R.M.King & H.Rob.	Asteraceae	Shrub	Assamlota	0.74	0.53	0.98	2.25	NE	YL, Fl	Cut, general weakness, wound, gastric ulcer, bleeding, narcotic, influenza, flatulence, fever, diabetes, poisonous insect sting, painful micturation	CTGU H-SBF 139
39	<i>Cissus javanica</i> DC.	Vitaceae	Climber	Rangila lata	0.07	0.27	0.2	0.54	NE	L, StJ, RJ	Boils, flatulence, liver cancer, mental disorder, snake bite	CTGU H-SBF 140
40	<i>Cissus pentagona</i> (Roxb.) Lawson	Vitaceae	Climber	Panchkona lata	0.66	0.53	0.88	2.07	NE	R	Skin disease, elephantiasis, filaria	CTGU H-SBF 141
41	<i>Clerodendrum viscosum</i> Vent.	Verbenaceae	Shrub	Ghelu bhat	1.87	1.33	0.99 7	4.2	NE	L, R	Stomachache, dysentery, diarrhea, abdominal pain, jaundice, scabies, toothache, gastric ulcers	CTGU H-SBF 142

42	<i>Colocasia esculenta</i> (L.) Schott	Araceae	Herb	Kochu	6.32	2.13	2.1	10.6	LC	Pet, LJ, CJ	Bleeding, bone fracture, poisonous insect sting, tonsillitis, styptic, stimulant, rubefacient, athlete's foot, bleeding from cuts, tumours, ulcerated polyp, cancer of nose and warts, laxative, piles, congestion of the portal system and alopecia	CTGU H-SBF 143
43	<i>Commelina benghalensis</i> L.	Commelinaceae	Herb	Dholpata	0.74	0.27	1.95	2.96	LC	WP	Blistery, demulcent, refrigerant, laxative, emollient, leprosy, otitis media suppurativa, sores, snake-bite	CTGU H-SBF 006
44	<i>Commelina diffusa</i> Burm.f.	Commelinaceae	Herb	Monayna kanshira	0.55	0.27	1.46	2.28	LC	WP	Anaemia, boils, carbuncle, hordeolum, emetic, laxative, itchy spots, sores, swellings, burns, itches, leucorrhoea, urinary burning, cold, ulcer, gonorrhoea	CTGU H-SBF 007
45	<i>Commelina erecta</i> L.	Commelinaceae	Herb	Khata jatkhanshira	0.37	0.27	0.97	1.61	LC	St, L	Acne, otitis media, reumatic arthritis, scabies, weight loss	CTGU H-SBF 008
46	<i>Curculigo orchoides</i> Gaertn.	Liliaceae	Herb	Talamuli	4.56	2.13	1.51	8.2	NE	Bl, Pet, R, L, Tu	Snake bites, menorrhagia, bitter, tonic, alterative, restorative, dysuria, leucorrhoea, menstrual derangements, piles, jaundice, ophthalmia, indigestion, aromatic, diarrhoea, diuretic, appetizer, colic, pain in the joints, demulcent, gonorrhoea, skin diseases, asthma, whitlows, sexual debility, useful in bronchitis	CTGU H-SBF 009
47	<i>Curcuma aromatica</i> Salisb.	Zingiberaceae	Herb	Jongli haldi	0.11	0.27	0.29	0.67	NE	Rh	Tonic, carminative, appetizer, anthelmintic, blood purifier, applied to bruises, sprains, small-pox, headache	CTGU H-SBF 010

48	<i>Crateva magna</i> (Lour.) DC.	Capparaceae	Tree	Bonna	0.07	0.53	0.1	0.7	NE	L, Bd, F, B	Kidney and bladder stones, lipoma, asthma, cirrhosis, jaundice, piles, rheumatism, stomachache, fever, cholagogue, paralysis, demulcent, fever, vomiting.	CTGU H-SBF 011
49	<i>Cyanthillium patulum</i> (Dryand. ex Dryand.) H.Rob.	Asteraceae	Herb	Kukurshunga	0.51	0.27	1.36	2.15	NE	L, R, Fl, S	Conjunctivitis, asthma, diarrhea, herpes, fire burning, poliomyelitis, tetanus, tonsillitis, colic, gout, hysteria, liver cancer, meningitis, otitis media	CTGU H-SBF 012
50	<i>Cyathea gigantea</i> (Wall. ex Hook.) Holttum	Cyatheaceae	Herb	Baro brikha fern	0.29	0.27	0.78	1.34	NE	Ca	Blood clotting, microbial infection, abscess formation	CTGU H-SBF 013
51	<i>Cymbidium aloifolium</i> (L.) Sw.	Orchidaceae	Epiphyte	Tosabak	0.11	0.27	0.29	0.67	NE	S, L	Jaundice, cut injury, lesion, tetanus, boils, gout, otitis media, febrifuge	CTGU H-SBF 014
52	<i>Dalbergia volubilis</i> Roxb.	Fabaceae	Shrub	Ankilata	0.51	1.07	0.34	1.92	NE	L, B, RJ	Skin disease, urinary trouble, aphthae, sore throat, gonorrhoea, gastritis	CTGU H-SBF 015
53	<i>Dendrobium aphyllum</i> (Roxb.) C.E.C.Fisch.	Orchidaceae	Epiphyte	Fasiariam	0.11	0.27	0.29	0.67	LC	L	Abnormal head structure, gout, rheumatism	CTGU H-SBF 016
54	<i>Desmodium motorium</i> (Houtt.) Merr.	Fabaceae	Shrub	Gorachand	0.04	0.27	0.09	0.4	NE	L	Measles, rheumatism, paralysis	CTGU H-SBF 017
55	<i>Desmodium gangeticum</i> (L.) DC.	Fabaceae	Shrub	Chalani	0.55	0.27	1.46	2.28	NE	L, R, AP	Tumors, worm, skin disease, burning sensation, headache, mental disorder, oedema, asthma, piles, fever, typhoid, bronchitis, dysentery, diarrhoea, biliousness, cough	CTGU H-SBF 018

56	Desmodium heterocarpon (L.) DC.	Fabaceae	Shrub	Karpo modi	0.44	0.27	1.17	1.88	NE	WP	Fainting, convulsion, tonic, cough, Bone fracture, gastric tumor, hysteria, rheumatism	CTGU H-SBF 019
57	Desmodium triflorum (L.) DC.	Fabaceae	Shrub	Kataliya	0.44	0.27	1.17	1.88	NE	L	Jaundice	CTGU H-SBF 020
58	Desmos chinensis Lour.	Annonaceae	Tree	Sotoyalang	0.07	0.53	0.09	0.7	NE	RJ	Vertigo, diarrhea, dysentery	CTGU H-SBF 051
59	Dicliptera bupleuroides Nees	Acanthaceae	Herb	Klitera	0.51	0.27	1.36	2.15	NE	L	Gout, rheumatism, tuberculosis	CTGU H-SBF 052
60	Dillenia indica L.	Dilleniaceae	Tree	Chalta	0.04	0.27	0.09	0.4	LC	F, B, L	Cough, cold, dyspepsia, fever and purgative, lipoma, diarrhoea, dysentery, astringent, abortion, hair fall, spermatorrhoea, general weakness, septic sore, traumatic injury, food poisoning	CTGU H-SBF 053
61	Dioscorea bulbifera L.	Dioscoreaceae	Climber	Banalu	0.85	1.07	0.56	2.47	NE	Tu, AP	Vasicatories, bronchitis, tonic, diarrhoea, stomachic, expectorant, anthelmintic, piles, dysentery, asthma, astringent to the bowels, dyspepsia, syphilis, urinary discharges, leucoderma, aphrodisiac, ulcers	CTGU H-SBF 054
62	Dioscorea pentaphylla L.	Dioscoreaceae	Climber	Jum alu	0.33	0.53	0.44	1.3	NE	L, Blb	Rheumatism, pains, jaundice, tonic, swelling, lice, dropsy, anasarca	CTGU H-SBF 055
63	Dipterocarpus turbinatus C.F.Gaertn	Dipterocarpaceae	Tree	Garjan	0.07	0.53	0.09	0.7	VU	Re	Jaundice, carbuncle, tetanus, pyemia, lesion, fever, otitis media, cut injury	CTGU H-SBF 056

64	<i>Eclipta prostrata</i> (L.) L.	Asteraceae	Herb	Kesuti	0.51	0.27	1.36	2.15	LC	R, L, WP	Brain and hair tonic, Female disease, rheumatic fever, boils, jaundice, burning wound, foot mud sore, gout, irregular menstruation, leprosy, pneumonia, vertigo, bronchitis, asthma, leucoderma, anaemia, itching, night blindness	CTGU H-SBF 057
65	<i>Elatostema sesssile</i> J.R.Forst. & J.G.Forst.	Urticaceae	Shrub	Sessijhara	0.11	0.27	0.29	0.67	NE	L	Abdominal disorders, bodyache, boils, pimples	CTGU H-SBF 058
66	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Herb	Ghaopata	0.51	0.27	1.36	2.15	NE	PJ, WP, Lat	bowel complaints, helminthiasis, cough, asthma, dysentery, cuts, abdominal pain, diarrhea, chronic bronchitis, otitis, pneumonia, sore on breast, hemostatic, abscesses, inflamed glands, ulcers, edemas, phlegmons, narcotic, fever, amoebiasis	CTGU H-SBF 059
67	<i>Evolvulus nummularius</i> (L.) L.	Convolvulaceae	Herb	Bhuiokra	0.22	0.27	0.58	1.07	NE	WP	Painful micturation, ureterolithiasis, gall stone, kidney stone	CTGU H-SBF 060
68	<i>Ficus auriculata</i> Lour.	Moraceae	Tree	Kani-bot	0.15	1.07	0.09	1.31	LC	RJ	Epilepsy	CTGU H-SBF 061
69	<i>Ficus benghalensis</i> L.	Moraceae	Tree	Bot	0.07	0.53	0.09	0.7	NE	Lat, B, L, YBd, AR, S	Impotency, biliousness, abscesses, diarrhoea, dysentery, tonic, cooling, aphrodisiac, constipation, vulnerary, maturant, toothache, piles, diabetes, inflamed soles, rheumatic pains, lumbago, inflammations, styptic and aphrodisiac, obstinate vomiting	CTGU H-SBF 176

70	<i>Ficus hispida</i> L.f.	Moraceae	Tree	Dumur	0.26	1.87	0.09	2.22	LC	L, F, S, B, RJ	Child fever, female disease after giving birth of child, swirling of body, purgative, emetic, cooling, astringent, baldness, epilepsy, facial paralysis, menorrhagia, lactagogue, tonic, menstrual hemorrhage, blood pressure	CTGU H-SBF 177
71	<i>Ficus rumphii</i> Blume	Moraceae	Tree	Jhula bot	0.07	0.53	0.09	0.7	NE	B	Bone fracture	CTGU H-SBF 178
72	<i>Ficus semicordata</i> Buch.-Ham. ex J.E.Sm.	Moraceae	Tree	Sadimadi dumur	0.04	0.27	0.09	0.4	LC	F, B, RJ, St	Aphthous complaints, leprosy, bladder complaints, visceral obstructions, tiger-bite to avoid septic	CTGU H-SBF 179
73	<i>Getonia floribunda</i> Roxb.	Combretaceae	Shrub	Goachelata	0.26	0.27	0.68	1.22	NE	L, F	Helminthiasis, jaundice, ulcers, malaria fever, leprosy	CTGU H-SBF 180
74	<i>Gmelina arborea</i> Roxb.	Verbenaceae	Tree	Gamari	0.07	0.53	0.09	0.7	LC	B, R, Fl, L	Bitter tonic, galactagogue, piles, abdominal pain, fever, leprosy, ulcer, gonorrhoea, cough, blood disease, jaundice, foot mud sore, worm, liver disease, scabies, astringent, diuretic, tonic, aphrodisiac, alterative, anaemia, consumption, vaginal discharges, laxative, anthelmintic, stomachic, burning sensations, septic wounds	CTGU H-SBF 181
75	<i>Gnetum latifolium</i> Blume	Gnetaceae	Climber	Chorapati netum	0.04	0.27	0.09	0.4	LC	L	Hysteria	CTGU H-SBF 182
76	<i>Grewia nervosa</i> (Lour.) Panigrahi	Tiliaceae	Tree	Asar	0.26	0.27	0.68	1.21	NE	L, WP	Indigestion, eczema, typhoid fever, dysentery, small fox, itches, syphilitic ulceration of the mouth, jaundice	CTGU H-SBF 183

77	<i>Haldina cordifolia</i> (Roxb.) Ridsdale	Rubiaceae	Tree	Keli kadam	0.18	0.27	0.48	0.94	NE	B, R, PJ	Flatulence, gastric tumor, headache, vertigo, biliousness, Blood purifier, skin diseases, astringent in dysentery, sores, fever, inflammation, strangury	CTGU H-SBF 184
78	<i>Helicteres isora</i> L.	Sterculiaceae	Shrub	Mura	0.22	0.53	0.29	1.05	NE	L, Pd, B, R	Eczema, skin diseases, demulcent, astringent, bowels, flatulence, chronic dysentery, intestinal worms, dysentery, diarrhoea, biliousness, cough, asthma, diabetes, stomach affections, expectorant, antigalactagogue, griping, scabies	CTGU H-SBF 185
79	<i>Holarrhena</i> <i>antidysenterica</i> (Roxb. ex Fleming) Wall. ex A.DC.	Apocyanaceae	Tree	Kurchi	0.04	0.27	0.09	0.4	LC	R, L, B	Fever, boils, paralysis, stomachpain, itch, diarrhoea, dysentery, chronic bronchitis, jaundice	CTGU H-SBF 186
80	<i>Holigarna</i> <i>longifolia</i> Buch.- Ham. ex Roxb.	Anacardiaceae	Tree	Jhawa	0.22	0.53	0.29	1.05	NE	B	Polyps in nose	CTGU H-SBF 187
81	<i>Homalomena</i> <i>pendula</i> (Blume) Bakh.f.	Araceae	Herb	Ghondodul a kochu	0.07	0.27	0.19	0.54	NE	Pet	Rheumatic pain	CTGU H-SBF 188
82	<i>Hydnocarpus</i> <i>kurzii</i> (King) Warb.	Flacourtiaceae	Tree	Chalmugra	0.07	0.27	0.19	0.54	DD	S, O, F, B	Lipoma, leprosy, skin diseases, cancer, febrifuge	CTGU H-SBF 189
83	<i>Hyptis brevipes</i> Poit.	Lamiaceae	Herb	Gol tokma	0.26	0.8	0.22	1.29	NE	L	Lipoma	CTGU H-SBF 062

84	<i>Hyptis suaveolens</i> (L.) Poit.	Lamiaceae	Shrub	Tokma	0.37	0.53	0.48	1.39	NE	R, S	Fever, boils, headache, stomachpain, itch, constipation, anorexia, asthma, chest pain, dehydration, general weakness, hyper acidity, hysteria, mania infantum, piles, rheumatism, snake bite, spermaturia, tuberculosis	CTGU H-SBF 063
85	<i>Ichnocarpus frutescens</i> (L.) R.Br.	Apocyanaceae	Climber	Shamlota	1.03	1.33	0.54	2.91	NE	WP, L, YTw, R, St	Bone fracture, skin troubles, stimulant, fever, dental caries, lipoma, mastopenia, measles, stone in the bladder, strangury, wounds, eczema, cooling, demulcent, alterative, tonic, diaphoretic, diuretic, dyspepsia, diabetes, headaches, sore between fingers, scabies	CTGU H-SBF 064
86	<i>Ipomoea pes-tigridis</i> L.	Convolvulaceae	Climber	Langulilat a kalmi	0.26	0.8	0.22	1.29	NE	L, St, R	Cut, wound, purgative, bolis, carbuncles, dog-bites	CTGU H-SBF 065
87	<i>Ixora nigricans</i> R.Br. ex Wight & Arn.	Rubiaceae	Shrub	Kuthi rangan	0.29	0.53	0.39	1.22	NE	R, L	Diarrhoea, ear infection, paralysis, dysentery	CTGU H-SBF 066
88	<i>Jacquemontia paniculata</i> (Burm.f.) Hallier f.	Convolvulaceae	Climber	Montilata	0.26	0.27	0.68	1.21	NE	B, BJ	Ointment, fever, cough	CTGU H-SBF 067
89	<i>Lagerstroemia speciosa</i> (L.) Pers.	Lythraceae	Tree	Jarul	0.04	0.27	0.09	0.4	NE	R, L, B, F	Astringent, stimulant, febrifuge, purgative, aphthae of mouth, abdominal pain, anaemia, antenata care, body pain, cold fever, diarrhoea, eczema, flatulence, general weakness, gynecological disease, worm, ill health, paralysis, stomach disorder, tetanus, tonsilitis	CTGU H-SBF 068

90	<i>Lanea coromandelica</i> (Houtt.) Merr.	Anacardiaceae	Tree	Bhadi	0.07	0.27	0.19	0.54	LC	B	Blood purifier, boils, tympanitis	CTGU H-SBF 069
91	<i>Leea indica</i> (Burm. f.) Merr.	Leeaceae	Shrub	Bonfotka	0.26	0.8	0.22	1.29	NE	L, R	bone fracture, abscesses, snake biting, boils, rheumatic arthritis, gastric tumor, gout, itch, paratyphoid, bubo, epilepsy	CTGU H-SBF 070
92	<i>Leea macrophylla</i> Roxb. ex Hornem.	Leeaceae	Shrub	Hastikarna	1.14	1.6	0.5	3.24	NE	L, R	Tonsillitis, tetanus, worm, bleeding, gastric tumor, goiter, gout, rheumatism, lipoma, astringent, alexipharmac, obstinate sores, pain	CTGU H-SBF 071
93	<i>Lepidagathis hyalina</i> Nees	Acanthaceae	Herb	Haya	0.26	0.27	0.68	1.21	NE	RJ	Chest pain	CTGU H-SBF 072
94	<i>Lindernia antipoda</i> (L.) Alston	Scrophulariaceae	Herb	Zai ghas	0.4	0.27	1.07	1.75	LC	R, L	Boils	CTGU H-SBF 073
95	<i>Litsea glutinosa</i> (Lour.) C.B.Rob.	Lauraceae	Tree	Kukorcita	0.04	0.27	0.09	0.4	LC	B, L, St, R	Diarrhoea, jaundice, dysentery, asthma, rheumatism, cirrhosis, epilepsy, evil spell, general weakness, worm, leucorrhoea, cancerous tumor, lipoma, liver disease, paralysis, pyerrhoea, bone fracture, bleeding, boils, ureterolithiasis, spermatorrhoea, strangury, carbuncle, osteoarthritis, anklitis, gastric tumor	CTGU H-SBF 074
96	<i>Ludwigia adscendens</i> (L.) Hara	Onagraceae	Shrub	Mulsi	0.11	0.27	0.29	0.67	LC	WP	Poultice in ulcers and skin disease, dysentery	CTGU H-SBF 075
97	<i>Ludwigia hyssopifolia</i> (G. Don) Exell.	Onagraceae	Herb	Panilong	1.47	1.07	0.97	3.51	LC	L, R	Anklitis, gynecological disease, hysteria, puerperalism, stomachache, tetanus	CTGU H-SBF 076

98	Lygodium flexuosum (L.) Sw.	Schizaeaceae	Climber	Saralata fern	0.48	0.53	0.63	1.65	NE	R, L	Colic, hysteria, expectorant, meningitis, rheumatism, dental caries, sprains, mental disorder, scabies, pyorrhoea, ulcers, loose motions, cut, wounds, curbuncles, menorrhagia, fever, mumps, poisonous insect sting, strangury, tuberculosis, vomiting, epilepsy, prickly heat	CTGU H-SBF 077
99	Lygodium microphyllum (Cav.) R.Br.	Schizaeaceae	Climber	Patilata fern	0.33	0.27	0.88	1.48	LC	L	Dysentery, skin diseases, swellings	CTGU H-SBF 094
100	Macaranga peltata (Roxb.) Müll.Arg.	Euphorbiaceae	Tree	Pelta bura	0.22	0.53	0.29	1.05		B, R	Boils, piles, gout, paralysis	CTGU H-SBF 095
101	Maesa indica (Roxb.) A.DC.	Myrsinaceae	Shrub	Deshiuni	0.07	0.27	0.19	0.54	LC	L, F, R	Boils, gallstone, lactopenia, paralysis, puerperalism, eject pus from boils, anthelmintic, syphilis	CTGU H-SBF 096
102	Mangifera indica L.	Magnoliaceae/ Anacardiaceae	Tree	Aam	0.59	1.33	0.31	2.23	DD	B, F, L, Lat	Asthma, Hemorrhage, fever, diarrhea, toothache, diabetes, dysentery, lipoma, pneumonia, menorrhagia, rheumatism, stomach disorder, eruption, astringent, laxative, antiscorbutic, nasal bleeding, anthelmintic, bleeding piles, cutting wound, ophthalmia	CTGU H-SBF 097
103	Manihot esculenta Crantz	Euphorbiaceae	Shrub	Kasava	0.48	0.8	0.42	1.7	DD	R, B	Gastric tumor, jaundice, oedema	CTGU H-SBF 098
104	Melastoma malabathricum L.	Melastomataceae	Shrub	Bon tejpata	0.55	0.53	0.73	1.82	NE	L, Fl	Diarrhoea, dysentery, boils, flatulence, oedema, snake bite, body pain, sore in tongue, ulcers, gynecological disease, scabies, abdominal pain	CTGU H-SBF 099

105	Melocanna baccifera (Roxb.) Kurz	Poaceae	Herb	Mulibash	9.15	2.13	3.04	14.3	NE	F	Low blood pressure	CTGU H-SBF 100
106	Micromelum hirsutum Oliver	Rutaceae	Tree	Ghaskhasa	0.04	0.27	0.09	0.4	NE	L, R	Malaria fever, skin disease	CTGU H-SBF 101
107	Micromelum minutum (J.G.Forster) Wight & Arn.	Rutaceae	Tree	Koroiphul a	0.04	0.27	0.09	0.4	LC	RJ, L	Body pain, bruise, cholera, colic, constipation, epilepsy, febric convulsion, fever, flatulence, food poisoning, hiccup, hydrocele, hysteria, impotence, lumps in the throat, mental disorder, paratyphoid, paralysis, pneumonia, prickly heat, rheumatism, rheumatic arthritis, sore in tongue, sterility, stomachache, tingling sensation, tuberculosis, urticaria	CTGU H-SBF 102
108	Mikania micrantha Kunth	Asteraceae	Climber	Asamlata	1.18	1.33	0.62	3.14	NE	L	Cut and wounds	CTGU H-SBF 103
109	Mimosa pudica L.	Mimosaceae	Shrub	Lajjabati	0.81	0.53	1.07	2.42	LC	WP	Wounds, sore on breast, gout, fistula, septic sore, stomachache, dysentery, piles, rheumatism, jaundice, boils, bronchitis, gastric tumor, gonorrhoea, hysteria, pyorrhoea, rheumatic arthritis, skin disease, measles	CTGU H-SBF 117
110	Mitragyna diversifolia (Wall. ex G.Don) Havil.	Rubiaceae	Tree	Phul-kadam	0.59	1.33	0.31	2.23	LC	B	Diarrhoea	CTGU H-SBF 118
111	Molineria capitulata (Lour.) Herb.	Liliaceae	Herb	Satipata	0.74	0.27	1.95	2.96	NE	Rh, R, L	Cutting wound, dysentery, hernia, septic sore, vessel injury, vomiting, hemorrhage, country liquor	CTGU H-SBF 119

112	<i>Mukia maderaspatana</i> (L.) M.Roem.	Cucurbitaceae	Climber	Bilari	0.59	1.07	0.39	2.05	NE	RJ	Dysurea	CTGU H-SBF 120
113	<i>Murraya koenigii</i> (L.) Spreng.	Rubiaceae	Shrub	Chotokami ni	0.18	0.27	0.48	0.94	NE	L, B, R	Tonic, stomachic, dysentery, bruises, eruptions, vomiting, febrifuge, stimulants, purgative, kidney pain	CTGU H-SBF 121
114	<i>Musa ornata</i> Roxb	Musaceae	Herb	Ramkola	1.91	1.33	1.01	4.26	LC	Inf	Diarrhoea	CTGU H-SBF 122
115	<i>Musa paradisiaca</i> var. <i>sapientum</i> (L.) Kuntze	Musaceae	Herb	Kola	0.55	0.53	0.73	1.82	NE	L, B, R	Toothache, stimulant, astringent, diarrhoea, dysentery, dropsy, cuts	CTGU H-SBF 123
116	<i>Mussaenda glabra</i> Vahl	Rubiaceae	Herb	Bichmali	0.18	0.53	0.24	0.96	NE	L, R, FI	Jaundice, leprosy, food poisoning, pectoral, diuretic, asthma, interrmittent fevers, dropsy, ulcers	CTGU H-SBF 124
117	<i>Mussaenda roxburghii</i> Hook.f.	Rubiaceae	Shrub	Silchaonri	0.33	0.8	0.29	1.42	NE	L	Paralysis, oedema, breast pain, cirorhosis, epilepsy, gout, headache, hyper acidity, bleeding, skin disease, food poisoning, snake bite, swelling of armpit gland, lipoma, tumor, abdominal pain, pediatric disease, pyorrhoea, rheumatism	CTGU H-SBF 125
118	<i>Mycetia longifolia</i> (Wall.) Kuntze	Rubiaceae	Herb	Mycetelon	0.18	0.27	0.48	0.94	NE	RJ	Lipoma, liver cancer, rheumatism	CTGU H-SBF 126
119	<i>Oreocnide integrifolia</i> (Gaud.) Miq.	Urticaceae	Tree	Horhutta	0.29	0.8	0.26	1.35	NE	R, LJ	Rahes, diabetes, high blood pressure	CTGU H-SBF 127
120	<i>Oroxylum indicum</i> (L.) Kurz	Bignoniaceae	Tree	Thona	0.04	0.27	0.09	0.4	NE	B, L	Jaundice, dysentery, asthma, body pain, colic, diarrhoea, general weakness, hook worm infestation, hydrocele, jaundice, liver disorder, piles, rabies,	CTGU H-SBF 128

											strangury, tonsilitis	
121	<i>Panicum maximum</i> Jacq.	Poaceae	Herb	Panicum ghas	1.47	0.27	3.91	5.65	NE	L	Lumbago	CTGU H-SBF 129
122	<i>Panicum repens</i> L.	Poaceae	Herb	Beranda	2.94	0.53	3.91	7.38	LC	R, Rh	Kidney disease, dysuria, fever, menopausal symptoms, heart disease, gonorrhoea	CTGU H-SBF 164
123	<i>Paramignya scandens</i> (Griff.) Craib	Rutaceae	Shrub	Bannebu	0.07	0.27	0.19	0.54	NE	R	Fever	CTGU H-SBF 165
124	<i>Passiflora foetida</i> L.	Passifloraceae	Climber	Jumkolata	0.33	0.53	0.44	1.3	NE	L, F	Headache, biliousness, asthma, emetic, blood pressure, menopause, ring worm, skin diseases with inflammation, sore throat, emmenagogue, hysteria, giddiness, emetic	CTGU H-SBF 166
125	<i>Peperomia pellucida</i> (L.) Kunth	Piperaceae	Herb	Peperomia	0.62	0.27	1.66	2.55	NE	LJ	Allergy, boils, eczema, gastric tumor, headache, poisonous insect sting, snakebite, refrigerant, fever, abdominal pains, anti-convulsions, boils, sores, cracks in sole	CTGU H-SBF 167
126	<i>Persicaria chinensis</i> (L.) H.Gross	Polygonaceae	Herb	Chinese bishkatali	1.47	1.07	0.97	3.51	NE	L	Snakebites, allergies	CTGU H-SBF 168

127	<i>Persicaria hydropiper</i> L.	Polygonaceae	Herb	Biskatali	1.65	0.8	1.46	3.92	LC	R, LJ	Stomach pain, premature abortion, skin diseases, stimulant, diuretic, dysmenorrhoea, amenorrhoea, , headache, intestinal worms, body pain, , painful carbuncles, gastric ulcer, hemorrhage, dysentery, liver pain, toothache, tonic, loss of appetite, wounds, enlarged liver, emmenagogue	CTGU H-SBF 169
128	<i>Persicaria orientalis</i> (L.) Spach	Polygonaceae	Herb	Bara panimarich	0.62	0.27	1.66	2.55	NE	WP	Tonic, vulnerary, wounds	CTGU H-SBF 170
129	<i>Phragmites karka</i> (Retz.) Trin. ex Steud.	Poaceae	Herb	Nolkhagra	0.26	0.27	0.68	1.21	LC	WP, R	Cooling, heart diseases, aphrodisiac, complaints, erysipelas, biliousness, diaphoretic, vaginal and uterine, urinary troubles	CTGU H-SBF 171
130	<i>Phyllanthus emblica</i> L.	Euphorbiaceae	Tree	Amloki	0.04	0.27	0.09	0.4	LC	F, L, Fl, B	Cough, cold, gastric ulcer, vomiting, diarrhoea, dyspepsia, excessive menstruation, dysentery, jaundice, anaemia, anorexia, beriberi, biliary, cirrhosis, dehydration, diabetes, flatulence, hair fall, hypertension, impotence, leucorrhoea, nausea, nervous debility, oedema, ophthalmia, paralysis, pyaemia, insomnia, respiratory troubles, general weakness, scurvy, tape worm infestation, vomiting	CTGU H-SBF 172
131	<i>Phyllanthus reticulatus</i> Poir.	Euphorbiaceae	Shrub	Pansheuli amala	0.29	0.27	0.78	1.34	LC	WP, LJ, F, B	Caries, dysentery, boils, carbuncle, diabetes, malaria, diuretic, cooling, diarrhoea, spongy and bleeding gums, bowels, inflammations, alterative, attenuant	CTGU H-SBF 173

132	<i>Phyllanthus sikkimensis</i> Müll.Arg.	Euphorbiaceae	Tree	Sikim amla	0.04	0.27	0.09	0.4	NE	L	Pain, inflammation, helminthiasis	CTGU H-SBF 174
133	<i>Pogostemon auricularius</i> (L.) Hassk.	Lamiaceae	Herb	Aripachuli	0.18	0.27	0.48	0.94	NE	WP	Colic, Diarrhoea, flatulence, hysteria, postpartum haemorrhage, rheumatism, salivation, stomachache, varicose vein, blood purifier	CTGU H-SBF 175
134	<i>Polygonum lapathifolium</i> L.	Polygonaceae	Herb	Bishkatali	0.62	0.27	1.66	2.55	LC	R	Stomach complaints, fevers	CTGU H-SBF 144
135	<i>Polygonum plebeium</i> R.Br.	Polygonaceae	Herb	Chemti sag	0.26	0.27	0.68	1.21	LC	R, WP	Pneumonia, bowel complaints, gallstone	CTGU H-SBF 145
136	<i>Pongamia pinnata</i> (L.) Pierre	Fabaceae	Tree	Koronja	0.07	0.53	0.09	0.7	LC	L, S, RJ, B,	Ulcers, worms, rheumatic pains, whitlow, uterine contractions, febrifuge, tonic, bronchitis, whooping cough, leprosy sores, skin diseases, painful rheumatic joints, anthelmintic, rheumatism, scabies, herpes, leucoderma, cutaneous diseases, bleeding piles, malaria, intermittent fever, fistulous sores	CTGU H-SBF 146
137	<i>Premna esculenta</i> Roxb.	Verbenaceae	Herb	Lalana	1.07	1.33	0.56	2.97	NE	L	Vomiting, jaundice, female disease, weakness, oedema, stomach disorder, worm, ureterolithiasis, fungal & bacterial infection, hysteria, leucorrhoea, lipoma, snake bite, gout	CTGU H-SBF 147
138	<i>Psychotria adenophylla</i> Wall.	Rubiaceae	Shrub	Lipikak	0.04	0.27	0.09	0.4	NE	RJ, LJ	Cough, rectal polyps, rheumatism, Tetanus	CTGU H-SBF 148

139	<i>Pueraria tuberosa</i> (Willd.) DC.	Fabaceae	Climber	Gola kunch	1.21	1.87	0.46	3.54	NE	Fl, Tu, R	Cooling, aphrodisiac, tonic, galactagogue, diuretic, alterative, clears the voice, leprosy, burning sensation, urinary discharges, emetic, lactagogue, demulcent, refrigerant, fevers	CTGU H-SBF 149
140	<i>Ricinus communis</i> L.	Euphorbiaceae	Shrub	Verenda	0.74	0.8	0.65	2.19	NE	YL, S, R	Joint pains, constipation, rheumatism, inflammation and nervous disorders, anal fistula, boils, chest pain, cirrhosis, diarrhoea, hoarseness, hyperacidity, hysteria, mania infantum, mental disorder, night blindness, paralysis, piles, sinusitis, strangury	CTGU H-SBF 150
141	<i>Sarcochlamys pulcherrima</i> Gaudich.	Urticaceae	Shrub	Korobi	0.51	0.8	0.45	1.77	NE	L	Boils, fever, blisters, eye itch, bone fracture, cutting wound, dandruff, eczema, flatulence, jaundice, lactopenia, painful micturation, paralysis	CTGU H-SBF 151
142	<i>Saurauia roxburghii</i> Wall.	Actinidiaceae	Tree	Dalup	0.07	0.53	0.09	0.7	LC	L	Boils, eczema, epilepsy, fever, gout, hydrocele, piles	CTGU H-SBF 152
143	<i>Schefflera elliptica</i> (Blume) Harms	Araliaceae	Shrub	Dahniascefler	0.51	0.8	0.45	1.77	NE	RJ	Lipoma, bone dislocation, gastric tumor, gingivitis, gout, hiccough, hysteria, facial paralysis, osteoarthritis, gingivitis, stomach complaints	CTGU H-SBF 153
144	<i>Scoparia dulcis</i> L.	Scrophulariaceae	Herb	Bandhuni	0.26	0.27	0.68	1.21	NE	L, R	Diabetes, chest pain, urinary tract infection, malaria, foot mud sore, painful micturation, gallstone diarrhoea, dysentery, asthma, boils, bone fracture, diarrhoea, hyperacidity, hysteria, malaria, poisonous insect sting, rabies, breast pain, food poisoning, sterility, vomiting, menorrhagia, febrile convulsion	CTGU H-SBF 154

145	<i>Senna alata</i> (L.) Roxb.	Caesalpinaceae	Shrub	Halud sena	0.22	0.27	0.58	1.07	LC	L, Fl, B, AP	Ringworms, herpes, venereal diseases, bronchitis, goiter, skin diseases	CTGU H-SBF 155
146	<i>Senna hirsuta</i> (L.) H.S.Irwin & Barneby	Caesalpinaceae	Herb	Gandhosen a	0.37	0.27	0.97	1.61	NE	L	Snake bites, malaria, skin disease	CTGU H-SBF 028
147	<i>Senna sophera</i> (L.) Roxb.	Caesalpinaceae	Shrub	Kalkeshun da	0.18	0.27	0.48	0.94	NE	L, S, B, R	Gastric tumor, jaundice, respiratory troubles, Cathartic, worm, asthma, bronchitis, hiccup, gonorrhoea, syphilitic sores, diabetes	CTGU H-SBF 156
148	<i>Senna tora</i> (L.) Roxb.	Caesalpinaceae	Herb	Teraj	0.18	0.27	0.48	0.94	NE	L	Boils, leishmaniasis, food poisoning, hepatomegaly, snake bite, stomachache, purgative, mental disorder, cough, insanity, skin disease, febrile convulsion	CTGU H-SBF 157
149	<i>Sida acuta</i> Burm.f.	Malvaceae	Shrub	Kureta	0.59	0.53	0.78	1.9	NE	WP	Diarrhoea, dysentery, acne, blister, boils, carbuncle, haematuria, jaundice, leucorrhoea, painful micturition	CTGU H-SBF 158
150	<i>Sida cordata</i> (Burm.f.) Waalkes	Malvaceae	Shrub	Jop	0.11	0.27	0.29	0.67	NE	RB, L, Fl, UF	Cooling, astringent, tonic, fever, urinary complaints, arthritis, leucorrhoea, gonorrhoea, micturition, cuts, bruises, diarrhoea of pregnancy, burning sensation, micturition	CTGU H-SBF 159
151	<i>Smilax zeylanica</i> L.	Smilacaceae	Climber	ILonica lata	0.18	0.27	0.48	0.94	NE	R, StJ, L	blood purifier, ulcer, venereal diseases, skin troubles, rheumatism, pains, dysentery, gonorrhoea, sores, swelling, abscesses	CTGU H-SBF 160
152	<i>Solanum sisymbriifolium</i> Lam.	Solanaceae	Shrub	Kanta begun	0.11	0.27	0.29	0.67	NE	RJ, L	Hysteria, remitting fever, stomachache	CTGU H-SBF 161

153	<i>Solanum torvum</i> Sw.	Solanaceae	Shrub	Gothbegun	0.29	0.53	0.39	1.22	NE	L, F, R	Fever, hyper acidity, stomachache, hook worm infestation, tonsillitis, typhoid, vomiting, thread worm infestation, ill health, leucorrhoea	CTGU H-SBF 162
154	<i>Spilanthes acmella</i> (L.) L.	Asteraceae	Herb	Marhatitiga	2.68	1.87	1.02	5.57	NE	FIH, PJ, R	Toothache, stimulant, sialagogue, affections of throat and gums, paralysis of the tongue, diuretic, lithontriptic, dysentery, rheumatism, scabies, psoriasis, glossitis, purgative	CTGU H-SBF 163
155	<i>Stenochlaena palustris</i> (Burm.f.) Bedd.	Blechnaceae	Herb	Pani lata dheki	0.48	0.8	0.42	1.7	NE	L	Skin disease, ulcers, stomachache, fevers	CTGU H-SBF 104
156	<i>Stephania japonica</i> (Thunb.) Miers	Menispermaceae	Climber	Akundi	0.04	0.27	0.09	0.4	NE	L, R	Tropical ulcer, asthma, dysentery, hydrocele, chest pain, colic, scabies, vertigo, diarrhoea, dyspepsia, fever, impotence	CTGU H-SBF 105
157	<i>Sterculia foetida</i> L.	Sterculiaceae	Tree	Jangalibadam	0.15	1.07	0.09	1.31	NE	B, L, OS, Cap	Aperient, diaphoretic, diuretic, astringent, itch, skin diseases, laxative, carminative, nausea, vertigo	CTGU H-SBF 106
158	<i>Sterculia villosa</i> Roxb.	Sterculiaceae	Tree	Loma udal	0.04	0.27	0.09	0.4	NE	L, R, B	Fever, headache, stomach pain, impotency, rheumatism, deficiency of calcium, fever, gastric ulcer, gout, headache, hysteria, impotence, jaundice, lumps in the throats, obesity, spermatorrhoea, spermaturia	CTGU H-SBF 107
159	<i>Stereospermum colais</i> (Buch.-Ham. ex Dillw) Mabb.	Bignoniaceae	Tree	Dharmara	0.04	0.27	0.09	0.4	NE	L, St	Bone fracture, dysurea, hook worm infestation, thread worm infestation, tuberculosis	CTGU H-SBF 108

160	<i>Stuednera colocasiifolia</i> K.Koch	Araceae	Herb	Bishkachu	0.11	0.27	0.09	0.67	NE	Pet	Skin infection, snake bites, insect bites, abdominal pain, carbuncle, rheumatism	CTGU H-SBF 109
161	<i>Streblus asper</i> Lour.	Moraceae	Tree	Shaora	0.04	0.27	0.09	0.4	LC	B, LJ, S, Lat, R	Abdominal problems, earache, dysuria, anaemia, anal fissure, dental caries, gastric tumor, general weakness, irregular menstruation, menorrhoea, painful micturation, paralysis, skin disease, spermaturia, stomachache, toothache, ureterolithiasis, boils, epilepsy, inflammatory swelling, fever, dysentery, diarrhoea, 162leucorrhoea	CTGU H-SBF 110
162	<i>Swintonia floribunda</i> Griff.	Anacardiaceae	Tree	Boilam	0.04	0.27	0.09	0.4	NE	L, B, BJ	CNIS stimulant, insect repellent, pain management	CTGU H-SBF 111
163	<i>Synedrella nodiflora</i> (L.) Gaertn	Asteraceae	Herb	Relanodi	1.03	1.07	0.68	2.78	NE	L, St	Eczema, foot mud sore, vertigo	CTGU H-SBF 112
164	<i>Syzygium grande</i> (Wight.) Walp.	Myrtaceae	Tree	Kalo jam	0.07	0.53	0.09	0.7	LC	B, L, S, F	Astringent, Diabetes, dysentery, Jaundice, stomach pain, asthma, cicatrix, anthelmintic, bowels, sore throat, bronchitis, toothache, general tonic, liver tonic, stomachic, carminative, diuretic	CTGU H-SBF 113
165	<i>Tacca integrifolia</i> Ker Gawl.	Dioscoreaceae	Herb	Matimunda	2.68	1.6	1.18	5.47	NE	Tu	Epilepsy, facial paralysis, gout, hyper acidity, lipoma, liver cancer, paralysis, paratyphoid, rheumatism, titenus, digestive, tonic, haemorrhagic diathesis, skin diseases, leprosy	CTGU H-SBF 114

166	<i>Tamarindus indica</i> L.	Caesalpiniaceae	Tree	Tentul	0.07	0.53	0.09	0.7	LC	L, B, F, FI	Helminthiasis, purgative, , amenorrhoea, gastric tumor, jaundice, dehydration, cataract, laborious labor, pyemia, asthma	CTGU H-SBF 115
167	<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Combretaceae	Tree	Bohera	0.04	0.27	0.09	0.4	NE	B, F, K, G, OS	Anaemia, rheumatism, astringent, hepatitis, breathing problems, cough and dysentery, menstruation, leucoderma, hair tonic, anal fissure, anorexia, cardiac weakness, constipation, dehydration, diarrhoea, dysmenorrhoea, dyspepsia, fever, foot mud sore, general weakness, heat stroke, hepatomegaly, hyper acidity, hyper tension, impotence, jaundice, lipoma, malaria, nervous debility, oedema, sight weakness, spermatorrhoea, stomachache, vomiting	CTGU H-SBF 116
168	<i>Thunbergia grandiflora</i> Roxb.	Acanthaceae	Climber	Nil lota	1.95	3.2	0.43	5.58	NE	L, R, Sap	Snake biting, rheumatism, eye disease, hydrocele, marasmus, stomach complaints, cataract, hysteria, malaria, ophthalmia, post eclampsia, conjunctivitis, pre eclampsia, spermatorrhoea, gout, stomachache, blood dysentery, diabetes	CTGU H-SBF 040
169	<i>Thysanolaena maxima</i> (Roxb.) Kuntze	Poaceae	Shrub	Jharu phul	0.59	0.53	0.78	1.9	NE	St	Eye infection, hysteria, ophthalmia, tuberculosis	CTGU H-SBF 041

170	Tinospora cordifolia (Willd.) Miers	Menispermaceae	Climber	Guloncho	0.26	0.27	0.68 4	1.21	NE	St, L, R	Blood purifier, pimples, haemoptysis, febrifuge, malaria, bruise, jaundice, scabies, spermatorrhoea, stomachic, tonic, expectorant, bile, gonorrhoea, cough, fever, rheumatism, colic, dropsy, alterative, aphrodisiac, acidity, burning urination, fatigue, chronic diarrhoea, burning sensation chronic dysentery, skin affections, gastritis, 171 cardiac problems, small-pox, measles	CTGU H-SBF 042
171	Trapa bispinosa Roxb.	Lythraceae	Herb	Panifol	0.26	0.27	0.68 4	1.21	NE	F	Nutritive, tonic, cooling, nervous and general debility, diarrhoea, seminal weakness, leucorrhoea, bilious affections	CTGU H-SBF 043
172	Trema orientalis (L.) Blume	Ulmaceae	Herb	Chikan	0.29	0.53	0.39	1.21	LC	St, R, B, L	Pus-oozing, septic abscess, stomachache, diarrhoea, epilepsy, muscular pains, fever, vomiting	CTGU H-SBF 044
173	Trevesia palmata (Roxb. ex Lindl.) Vis.	Araliaceae	Shrub	Argoja	0.37	1.07	0.24	1.68	LC	R, F	Bruising, paralysis, cirrhosis, hepato cellular jaundice, rheumatism, snake-bites, febric convulsion, swollen and painful penis of childrens, loose motions, dropsy, hydrocele,	CTGU H-SBF 045
174	Trichosanthes cucumerina L.	Cucurbitaceae	Climber	Banpatal	0.11	0.53	0.14	0.79	NE	LJ, F, S	Cardiac tonic, tonic, antipyretic, emmenagogue, boils, intestinal worms, bilious disorders, skin diseases, fever, emetic, purgative, alexiteric, stomachic, improve appetite, biliousness, bronchitis, asthma, itching, anthelmintic, cooling, antifebrile, cathartic	CTGU H-SBF 046

175	<i>Trichosanthes tricuspidata</i> Lour.	Cucurbitaceae	Climber	Makal	0.18	0.53	0.24	0.96	NE	L	Abdominal pain, allergy, body pain, boils, constipation, dysmenorrhoea, flatulence, gynecological disease, irregular menstruation, osteoarthritis, rheumatism, snake bite	CTGU H-SBF 088
176	<i>Triumfetta rhomboidea</i> Jacq.	Tiliaceae	Shrub	Bonokra	0.04	0.27	0.09	0.4	NE	Fl, L, R, B	Facilitate childbirth, diuretic, demulcent, diarrhea, dysentery, gonorrhoea, burning, cooling	CTGU H-SBF 089
177	<i>Urena lobata</i> L.	Malvaceae	Herb	Batapuran	2.72	1.33	1.44	5.5	LC	R, St, Fl, L	Rheumatism, abscess, boils, diarrhoea, headache, impotence, irregular menstruation, lumbago, diuretic, windy colic, pectoral, expectorant, dry coughs, aphthae, sore-throat	CTGU H-SBF 090
178	<i>Vitex glabrata</i> R.Br.	Verbenaceae	Tree	Goda	0.04	0.27	0.09	0.4	LC	B, L	Chest pain, fever, lipoma, painful micturation, piles, uroclesia	CTGU H-SBF 091
179	<i>Vitis pentagona</i> (Roxb.) Lawson	Vitaceae	Climber	Sona tola	0.33	0.53	0.44	1.3	NE	L, R	Eczema, skin diseases, filaria	CTGU H-SBF 092
180	<i>Ziziphus oenoplia</i> (L.) Mill. var. <i>oenoplia</i>	Rhamnaceae	Tree	Bon boroi	0.04	0.27	0.09	0.4	NE	L, R	Fever, headache, boils, itch, diarrhoea, hysteria, rheumatism, toothache, stomachache, wound	CTGU H-SBF 093
181	<i>Zingiber zerumbet</i> (L.) Roscoe ex Sm.	Zingiberaceae	Herb	Mohaborib otch	0.11	0.53	0.14	0.79	DD	Rh	Gout, lipoma, cough, asthma, worms, leprosy, skin diseases	CTGU H-SBF 047

*F=Fruit, R=Root, L=Leaves, WP=Whole plant, St=Stem, PJ=Plant Juice, B=Bark, Rh=Rhizome, Sh=Shoot, RJ=Root Juice, Blb=Bulbil, OS=oil of Seeds, Spr=Sprout, G=Gum, YL=Young Leaves, Bl=Bulb, K=Kernel, Fl=Flower, StJ=Stem Juice, Pet=Petiole, LJ=Leaf Juice, CJ=Corn Juice, Tu=Tuber, AP=Aerial Parts, Lat=Latex, YBd=Young Bud, AR=Aerial Root, S=Seed, O=Oil, YTw=Young Twig, Inf=Inflorescence, RB=Root Bark, UF=Unripe Fruit, Cap=Capsule, Sap=Sap, Ca=Caudex, PJ=Plant Juice, Bd=Bud, FJ=Fruit Juice, Re=Resin, Pd=PodBJ=Bark Juice

** As per IUCN, DD = data deficient, LC = least concern, NE = not evaluated, VU = Vulnerable

Therefore, **Table 2** divulged that *Melocanna baccifera* was the most important medicinal plant in the present VCF attaining magnitude of 14.3 importance value index (IVI). Alongside, the vital plants in the VCF comprised *Colocasia esculenta*, *Adiantumlunulatum*, and *Curculigo orchioides*, with IVI values of 10.6, 9.63, and 8.21, respectively. Contrary, lowest IVI value of 0.4 found in *Actephila excels*, *Bombax ceiba*, *Derris mitis*, *Dillenia indica*, *Ficus semicordata*, *Gnetum latifolium*, *Holarrhena antidysenterica*, *Lagerstroemia speciosa*, *Litsea glutinosa*, *Micromelum hirsutum*, *M. minutum*, *Phyllanthus emblica*, *Psychotria adenophylla*, *Stephania japonica*, *Sterculia villosa*, *Stereospermum colais*, *Streblus asper*, *Swintonia floribunda*, *Terminalia bellirica*, *Vitex glabrata* and *Ziziphus oenoplia*. Asheer portion of those respondents claimed they depended only on herbal remedies to cure a range of illnesses.

3.2. Diversity of plant habits and their parts utilization

Out of all recorded plants, five diversify plant types had been noted such as herbs, shrubs, trees, climbers, and epiphytes. Of them, herbs made up the greatest percentage (34.8% with 64 species) closely behind by trees (25.96% with 48 species), shrubs (23.2% with 42 species), climbers (13.8% with 25 species), and epiphytes (1.1 with 2 species). Indigenous communities around this selected VCF treated themselves using 42 different parts of the documented plants. The most used part of which was the leaves (100 species) followed by roots (65 species), barks (46 species), fruits (23 species), stems (19 species), whole plants (18 species) and roots juice (14 species). Use of shoot, sprout, bulb, kernel, corn juice, young bud, aerial root, oil of seeds, young twig, inflorescence, root bark, unripe root, capsule, caudex, plant juice, bud, fruit juice, resin and pod had been documented only in a handful number of species. The details information of all that depicted in **Table 2**.

3.3. Indices of plant diversity

One way to quantify how often these species in a community are present is to use diversity indices, in which multiple elements of biodiversity (richness and evenness) are represented it statistically into a single number. One of the components of diversity indexes particularly Shanon-Weiners index (H) analysis of this VCF accounted 4.26 indicating the existence of various medicinal plants with absolutely even distribution. According to existing literature on VCF, this diversity is greater magnitude of diversification than others two community based forest management of Renikhayong Para VCF in Bandarban and Komolchori VCF in Khagrachari: and almost identical with Beganasori and Bamer Bagechori VCF in Rangamati (Table 3). Consequently, this VCF has a Simpson's Index (D) value of 0.03, which is significantly lower than the preceding three VCFs' D (Simpson's Index) values, implying that this VCF contains a considerably greater diversity of medicinal plants than others. With a value of 0.97 for species evenness index (E), this VCF has almost evenly distribution of all documented species in the forest likely to Beganasori and Bamer Bagechori VCF and heterogeneous to Komolchori VCF, Renikhayong Para VCF.

As compare to government managed forest, this VCF is markedly rich in diversity than forest managed by Bangladesh forest department (BFD) in terms of diversity indices that reflecting maximum value of H, lower value of D and higher value of E than BFD forest (**Table 3**).

Table 3: Comparison of diversity indices of the study with findings form other community based Village Community Forests (VCF) and Bangladesh Forest Department (BFD) managed forests.

Diversity indices	This study	Other studies	Study sites	Managing authority
Shanon-Wiener index (H)	4.27	5.04 (Rudra et al., 2020a)	Beganasori and Bamer Bagechori	Solely managed by indigenous community

			VCF, Rangamati	
		3.22 (Chowdhury et al., 2018a)	Komolchori VCF, Khagrachari	Solely managed by indigenous community
		4.01 (Jannat et al., 2019)	Renikhayong Para VCF, Bandarban	Solely managed by indigenous community
		0.9 (Rahman et al., 2016)	Kaptai National Park, Rangamati	Managed by BFD
		3.25 (Nath et al., 2016)	Chunati Wildlife Sanctuary, Chattogram	Managed by BFD
Simpson index (D)	0.03	0.09 (Rudra et al., 2020a)	Beganasori and Bamer Bagechori VCF, Rangamati	Solely managed by indigenous community
		0.07 (Chowdhury et al., 2018a)	Komolchori VCF, Khagrachari	Solely managed by indigenous community
		0.03 (Jannat et al., 2019)	Renikhayong Para VCF, Bandarban	Solely managed by indigenous community
		0.37 (Rahman et al., 2016)	Kaptai National Park, Rangamati	Managed by BFD
		0.09 (Nath et al., 2016)	Chunati Wildlife Sanctuary, Chattogram	Managed by BFD
Species evenness index (E)	0.97	0.99 (Rudra et al., 2020a)	Beganasori and Bamer Bagechori VCF, Rangamati	Solely managed by indigenous community
		0.47 (Chowdhury et al., 2018a)	Komolchori VCF, Khagrachari	Solely managed by indigenous community
		0.09 (Jannat et al., 2019)	Renikhayong Para VCF, Bandarban	Solely managed by indigenous community
		0.62 (Rahman et al., 2016)	Kaptai National Park, Rangamati	Managed by BFD
		0.72 (Nath et al., 2016)	Chunati Wildlife Sanctuary, Chattogram	Managed by BFD

IUCN red list status

We determined the IUCN red list status of recorded plant species. Our study revealed that the out of 181 plant species, vulnerable only one species (*Dipterocarpus turbinatus*), least concern 51 species, data deficit 7 species and 122 species has not been assessed yet.

4. Discussion

There is ample proof that our predecessors were familiar with therapeutic herbs at least 60,000 years ago. As in ancient civilizations, plants have been used throughout birth to death, and people employ plants in a multitude of ways to live (Lamxay et al., 2011; Phumthum et al., 2018; Pieroni et al., 2017). Many of today's contemporary medications were first synthesized or extracted from plant compounds that acted as prototypes. But this traditional knowledge has been attenuated as the progression of globalization and urbanization over time (Ragupathy et al., 2008; Srithi et al., 2009). Because of that documentation and conservation of this ethnobotanical heritage is imperative as this is the finest attempt to understand their

brilliance and further upkeep this for human welfare. So, the ethnomedicinal plant diversity of the Badalchori Vadi Sora VCF in Rangamati (CHTs) was therefore identified and assessed in this study through documentation of their herbal knowledge.

During the course of our study, we identified 181 diverse medicinal plant species of variable habits under 145 genera and 65 families (Table 2), showing a similar level of diversity to prior CHT research (Faruque et al., 2018; Faruque et al., 2019; Kabir & Saha, 2014; Kadir et al., 2012; Motaleb et al., 2015). Some global studies also analogous to current studies (Malik et al., 2018; Pala et al., 2019; Rana et al., 2019). In this VCF majority of the species belonged to Asteraceae and Euphorbiaceae family in that order comes Rubiaceae, Araceae, Zingiberaceae and Fabaceae in terms of dominancy. Although this Asteraceae family supremacy may also be seen in adjacent nations such as India's Andhra Pradesh and Manipur (Khumbongmayum et al., 2005; Kumar et al., 2015), as well as Myanmar's Chin state (Ong et al., 2018). It is plausible that this is owing to the existence of homologous ecological, edaphic, and climatic factors. There are also a vast number of usage reports and values for such families across the world (Ferrier et al., 2015; Kankara et al., 2015). As the part of the phytosociological assessment, one bamboo (*Melocanna baccifera* (Roxb.) Kurz) species was exhibited its phytosociological dominance in the current investigations, with the greatest IVI value as well as a substantial proportion of RD, RA, and RF values (Table 2). Therefore, *Melocanna baccifera* is locally known as Mulibash, has the enormous value in ecosystem balance, has socio-economic significance not only for making furniture, handicrafts, housing (Nilkanta et al., 2017) but also for food (Govindan et al., 2016), industrial chemical components (Tripathi et al., 2018; Lalhrualtuanga et al., 2011) and medicinal importance (Kuddus et al., 2013).

Many of the people in the village of Badalchori Vadi Sora stated their trust in the use of formulations derived from various sections of medicinal plants to cure around 379 illnesses, which they had learnt from their ancestors and testifying the synergistic effects (one plants for multiple purposes) of plants as compared to noted species. For example, one recent study postulated that Rangamati incredibly enriched with ethnomedicinal plants containing 144 plants under 52 families for treating 90 ailments categorized into 25 disease categories (Kadir et al., 2012). Another studies on the Chakma community of Rangamati district unearthed that they utilized 50 different species to cure 28 different illnesses (Uddin et al., 2014).

Furthermore, we assessed the herbal formulation components from our investigations to determine the most often utilized plant parts as therapeutic ingredients. Our findings revealed that leaves are the most efficiently utilized plant component; unlike shoot, sprout, bulb, kernel, corn juice, young bud, aerial root, oil, oil of seeds, young twig, inflorescence, root bark, and other parts are seldom used plant parts of the Badalchori Vadi Sora peoples. (Table 2). Leaves are quite often documented to be utilized as herbal medicinal materials in Bangladesh (Rahman & Wilcock, 2007; Uddin et al., 2014) and other nations (Bradacs et al., 2011; Mukungu et al., 2016; Umair et al., 2017; Yemele et al., 2015) due to the presence of diverse bioactive compounds, ease of processing and harvesting, and sustainability (Jadid et al., 2020). Plant existence is not severely harmed by plucking the leaves material within appropriate limitations, but harvesting other plant components such as stems, roots, or entire plants could be detrimental to plants survival (Zheng & Xing, 2009). Herbs had been disclosed to be the most prevalent amongst plant habit types, whilst others had noted similar observations (Jan et al., 2017; Jashimuddin & Inoue, 2012b; Rao et al., 2015; Rudral et al., 2020a; Teklay et al., 2013; Ullah et al., 2020).

Contrary to what is often believed, phytosociological features and a calculation of the plant diversity index revealed that this community-based forest, such as Village Common Forest (VCF), is more diversified and has more uniformly distributed plant species than government managed forest in Bangladesh as evidenced of literature. Whereas Kaptai National Park and Chunati Wildlife Sanctuary of BFD maintained forest have lower diversity indices than present study (Nath et al., 2016; Rahman, Mahmud et al., 2016). More precisely, table 3 displayed that community base forest in Bangladesh had a considerably higher biodiversity status than BFD managed forests. This was possible by their community's collaborative efforts, in which they implement traditional resource management strategies to

preserve forest area for long usage and to ensure a sustainable supply of their livelihood resources. Unfortunately, current generation are not interested to practice this traditional knowledge. Likewise, natural resources are depleting day by day due to various anthropogenic activities. Therefore, it is urgently necessary to document this hidden treasure before going to lost forever as well as to take necessary actions against deforestation in the study area.

5. Conclusion

This study provides comprehensive documentation of all wild medicinal plants available in community managed natural tropical forest patches in CHTs. It revealed diversity of medicinal plants as well as their diversified uses in selected VCFs of Rangamati in CHTs. It also unveiled phytosociological attributes and diversity indices along with conservation status. Different plant parts are used for preparation of medicinal doses. Understanding and the uses of medicinal plants by indigenous people based on their traditional belief. There is a scope to investigate medicinal properties of plants for proper identification of bioactive compounds which may be helpful in drugs designing. They also be included in herbal industries with proper investigation. This study will be an extensive database for pharmaceutical and herbal industries in Bangladesh. Similar type of study can be carried out to sketch overall medicinal plant resources in all VCFs of CHTs. Biodiversity monitoring study also needed to check the diversity status and to take measures accordingly. The findings of the study will help to monitor diversity status in future. However, conservation of these medicinal plants will be challenging in near future as VCFs are depleting day by day. In-situ conservation strategy involving local communities is prescribed for sustainable management of VCFs.

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