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Survey of medicinal plants in Bishnupur District, Manipur, North Eastern India

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Abstract

A wide survey of medicinal plants at Bishnupur District was conducted at 14 (fourteen) study sites (1.Nambol, 2.Ngaikhong, 3.Ngaikhongsiphai, 4.Kwasiphai, 5.Nachou, 6. Potsangbam, 7.Upokpi, 8.Toupokpi, 9.Ningthoukhong, 10.Thinungei, 11.Phubala, 12.Sunusiphai, 13.Naranseina and 14.Thamnepokpi) covering the entire district. In the present study 100(hundred) species belonging to 56 (fiftysix) families and a total of 87 (eightyseven) genera of medicinal plants were found to be used in the different places of Bishnupur District. The plant species which have been collected from the survey sites are alphabetically enumerated providing the botanical names along with the collection numbers, local names, plant parts used and medicinal value. Some noteworthy ethno-medicinal value having peculiar traditional knowledge of plants which are used in curing diseases and ailments are *Caesalpinia bonducella* L., *Plantago erosa* Wall., *Oreocnide integrifolia* Miq., *Ficus glomerata* Roxb., *Terminalia arjuna* (Roxb.) Weight & Arn., *Melothria perpusilla* (Blume) Cogn. etc. and some important plants which are used to induce abortion are *Passiflora edulis* Sims, *Daucus carota* L., and *Hibiscus rosa-sinensis* L. In this study rare species *Iris sibirica* L., was found in this district and were thinly distributed.

Keywords: Medicinal plants, Distribution, Ethno-medicinal value, Traditional knowledge, Rare, Bishnupur District

Introduction

Manipur, a state of north eastern India is known for its ecologically distinctive and rich biodiversity having many endemic flora and fauna and rich cultural diversity (Singh *et al.*, 2012) [39]. Manipur literally meaning 'land of jewel' is a beautiful land-lock with valley in the centre surrounded by many hill ranges. The total geographical area of Manipur is covered by various types of forest and blessed with varied flora and fauna (<http://manipur.gov.in>). Manipur has geographical area of 22,327 sq. Km of which 90% are hilly regions, largely, characterized by dense forests and inaccessible terrains. The state is divided into 9 districts, viz. (1). Senapati, (2). Tamenglong, (3). Churachandpur, (4). Chandel, (5). Ukhrul, (6). Imphal East, (7). Imphal West. (8). Thoubal, and (9). Bishnupur. The first five districts are located on hills and the remaining four are in the valley (Bhattacharya N.N. 2006) [1].

Manipur mainly comprises of hilly terrain surrounding a centrally located saucer shaped valley of 1856 Km². It lies in between 23°83'N and 25°68'N latitude and 93°03'E and 94°78'E longitudes (<http://manipur.gov.in>).

Bishnupur is the district of Manipur State in north-eastern India with the smallest area. Its name is derived from a Vishnu Temple located at Lamangdong. Bishnupur town is the administrative headquarters of the district. Other major towns in this district are Nambol, Moirang and Kumbi. According to the 2011 census Bishnupur district has a population of 240, 363, (District Census 2011) roughly equal to the nation of Vanuatu (US Directorate of Intelligence. 2011). This gives it a ranking of 583rd in India (out of a total of 640). The district has a population density of 485 inhabitants per square kilometre (1,260/sq mi). Its population growth rate over the decade 2001-2011 was 15.36%. Bishnupur has a sex ratio of 1000 females for every 1000 males and a literacy rate of 76.35%. (District Census 2011). Primary language spoken is Meiteilon. Other languages spoken include Bishnupriya

Manipuri, Aimol, a Sino-Tibetan tongue with less than 3000 speakers. (M. Paul Lewis, ed. 2009) [27]. Bishnupur is surrounded by Thoubal district on the east, Imphal West on the north, and Churachandpur on the south. The total area of the Bishnupur district is 496 sq km. It is around 27 km from Imphal, the capital of Manipur. The National Highway 150 connects Imphal with Bishnupur. In 1977 Bishnupur district became home to Keibul Lamjao National Park, which has an area of 40 km² (15.4 sq mi). (Indian Ministry of Forests and Environment, 2011).

This district has a rich source of medicinal plants and the objectives of this research work is to know the distribution of medicinal plants and to understand the medicinal value of the plants used by the people of this district. And these are the data which have been collected before the creation of new districts in Manipur.

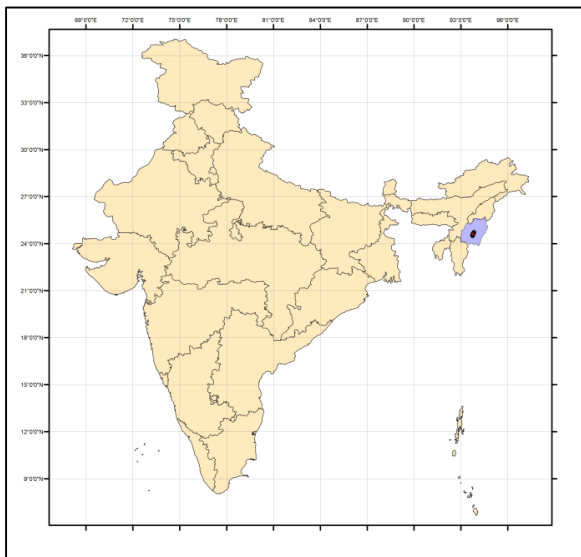


Fig 1: Map of Indian sub-continent showing the location of Manipur State.

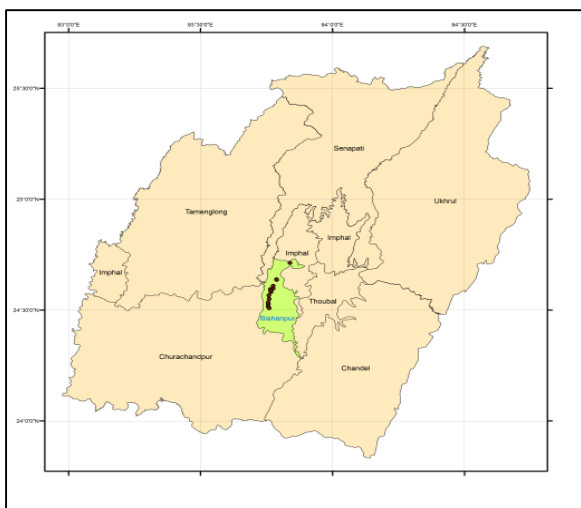


Fig 2: Map of Manipur State showing the location of Bishnupur District.

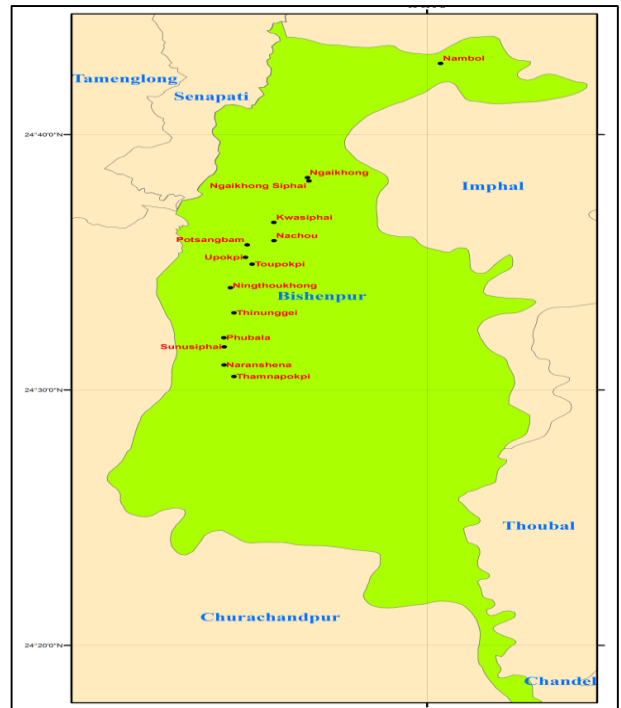


Fig 3: Map of Bishnupur District, Manipur showing the location of study sites.

Materials and methods

In this research work, an intensive survey was conducted at 14 (fourteen) study sites (1.Nambol, 2.Ngaikhong, 3. Ngaikhongsiphai, 4.Kwasiphai, 5.Nachou, 6. Potsangbam, 7.Upokpi, 8.Toupokpi, 9.Ningthoukhong, 10.Thinungei, 11.Phubala, 12.Sunusiphai, 13.Naranseina and 14.Thamnapokpi) covering all the areas of the District. Information on the use of medicinal plants and product was collected from well-known *Maibas* (traditional healers), senior headman through personal contact and also through actual experiences by using a questionnaire. The questionnaire were designed by following the methods of Parabia and Reddy (2002) [29]. The authenticity of uses was repeatedly verified by asking different individuals by oral contact. In case of contradictory information, all efforts have been made to determine the species properly with correct nomenclature.

The identified medicinal plants specimens were collected, dried properly and mounted on herbarium sheet for the purpose of identification as suggested by Jain & Rao (1977) [17]. The voucher specimens were deposited to the Manipur University Museum of Plants (MUMP), Manipur University, Canchipur for further reference. The International Plant Names Index (www.ipni.org) and The Plant Lists (www.plantlist.org) were referred for correct nomenclature and author citations. The investigated plant taxa have been alphabetically arranged and provided with the botanical names, family and local names followed by the collection number. After that plant parts used and medicinal value of plants are mentioned. The taxa are given below in the tabulation form.

Table 1: Medicinal Plants Available in Bishnupur District, Manipur.

Plant groups	Total no. of Medicinal Plant species	Total no. of genera	Total no. of families
Pteridophytes	2	2	2
Dicotyledons	77	71	44
Monocotyledons	21	14	10
Total	100	87	56

Table 2: List of Medicinal Plants of Bishnupur District, Manipur.

Sl. No.	Scientific name & Collection No.	Family	Local name	Part Used	Medicinal Value
1.	<i>Acacia farnesiana</i> (L.)Willd., MUMP-004369.	Leguminosae	<i>Chigonglei-namthibi</i>	Bark, seed & leaves	Decoction of the bark together with ginger is an astringent wash for the teeth to cure bleeding gum. Tender leaves are bruised with a little water and swallowed in gonorrhoea. Tender pod decoction paste is applied in ringworm. Seed oil is used in gout and muscular sprain.
2.	<i>Acacia nilotica</i> (L.) Delile, MUMP-004368.	Leguminosae	<i>chigonglei</i>	Bark, gum & leaves	Decoction of bark used as a gargle in sore throat and tooth ache. Pod-extract is used in urinogenital diseases. Infusion of tender leaves used as an astringent and remedy for diarrhoea and dysentery. Gum is used astringent and styptic.
3.	<i>Ageratum conyzoides</i> (L.)L., MUMP-1753.	Asteraceae	<i>Khongjainapi</i>	Whole plant	Plant extract is used in case of diarrhoea, dysentery and gastro-intestinal problems. The aerial portion of the plant is also used in the preparation of local hair lotion called chinghi.
4.	<i>Alisma plantago-aquatica</i> L., MUMP-1754.	Alismataceae	<i>Kouthum</i>	Seeds	Seeds are used against beri-beri.
5.	<i>Alpinia galanga</i> (L.)Willd. MUMP-0791.	Zingiberaceae	<i>Kanghuman</i>	Leaves & inflorescence	Fresh leaves are eaten for reducing high bloods pressure, carminative, astringent and antiseptic. Extract of inflorescence is used as gargle in tonsillitis. Leaf paste is applied on forehead in dizziness. Leaf decoction is eaten in cough and dyspepsia. Leaf infusion is useful for application to apathy and sore throat.
6.	<i>Alpinia nigra</i> (Gaertn.) Burt., MUMP-1977.	Zingiberaceae	<i>Pullei</i>	Rhizome	Boiled rhizome is used to cure cough, fever and dizziness.
7.	<i>Amaranthus viridis</i> L., MUMP-1763.	Amaranthaceae	<i>Chengkruk</i>	Shoot	Shoot extract is used in case of poisonous bites and also as emollient.
8.	<i>Argemone mexicana</i> L., MUMP-1249.	Papaveraceae	<i>Khomthokpi</i>	Whole plant	Plant juice is applicable locally in fresh injuries. Plants are pounded and applied to wounds and boils. Herb is used as an emollient. Fresh plant decoction is used in fresh wound and skin itching.
9.	<i>Artemisia maritima</i> L., MUMP-004367.	Asteraceae	<i>Ching-Laibakngou</i>	Leaves	Used against muscular sprain.
10.	<i>Artemisia nilagirica</i> (C.B.Clarke) Pamp. MUMP-1280.	Asteraceae	<i>Laibakngou</i>	Leaves	Used to cure stomach ulcer.
11.	<i>Asparagus filicinus</i> Buch.-Ham., MUMP-004366.	Liliaceae	<i>Nungarei</i>	Whole plant	Used against small pox.
12.	<i>Bauhinia purpurea</i> L., MUMP-1755.	Leguminosae	<i>Chingthrao</i>	Bark	Bark extract is used in poisonous bites, leprosy and also in menstrual problems.
13.	<i>Bidens pilosa</i> L., MUMP-0832.	Asteraceae	<i>Hameng – sampakpi</i>	Leaves	Fresh extract of leave is applied in eye and ear problems.
14.	<i>Bixa orellana</i> L., MUMP-0512.	Bixaceae	<i>Ureirom</i>	Leaves & seed	Leaves are used in jaundice. Leaves are used against poisonous bites. Seeds are astringent. The pulp surrounding the seed is a mosquito repellent, and is useful to treat dysentery. A non-toxic dye, Annatto dye” obtained from the pulp is used in colouring food items.
15.	<i>Blumeopsis flava</i> (DC.) Gagnep., MUMP-004365.	Asteraceae	<i>Haochak</i>	Leaves	Leaf extract is given in bronchial congestion, cold, catarrh, cough and effective in skin diseases. Hot fomented plant is applied as bandage against back-ache. Leaf is used with mustard oil for dropsy.
16.	<i>Bonnaya brachiata</i> L., MUMP-004364.	Scrophulariaceae	<i>Kihom-man</i>	Whole plant	Whole plant decoction is used in kidney and urinary complaints due to calculi formation.
17.	<i>Caesalpinia bonducella</i> (L.) Fleming, MUMP-004363.	Caesalpiniaceae	<i>Tinshibi</i>	Leaves	The paste obtained after rubbing the seeds on stone surface is given to children to cure fever and excessive body temperature. Leaves are emmenagogue, febrifuge, intestinal worms and fevers.
18.	<i>Cardiospermum helicacabum</i> L., MUMP-0366.	Sapindaceae	<i>Pok-laobi</i>	Leaves and Root	Leaves are used as poultice in rheumatism, rubifacient. Root extract is diuretic, laxative, emetic and applied in rheumatism.
19.	<i>Cayaponia laciniosa</i> (L.)C.Jefferey, MUMP-1962.	Curcubitaceae	<i>Kwak-thabi</i>	Tender twig and leaves	Tender twig extract is used in cuts, wounds, skin infection and burns. Boiled leaves are eaten and used in inflammation.
20.	<i>Chenopodium album</i> L.,	Amaranthaceae	<i>Monsoubi</i>	Leaves	Decoction of leaf is recommended for leucoderma

	MUMP-0219.				and liver enlargement treatment. Cooked plant is a good laxative and anthelmintic. Leaf decoction is stimulant to spleen disorders.
21.	<i>Clerodendrum indicum</i> (L.) Kuntze MUMP-0779.	Lamiaceae	<i>Kuthap</i>	Leaves	Leaf paste is useful for skin diseases. Leaf paste is taken to cure cough and dysentery. Leaves are used for rheumatic pains and high blood pressure
22.	<i>Clerodendrum serratum</i> (L.)Moon.R.Br. MUMP-0770.	Verbenaceae	<i>Moirang Khanam</i>	Leaves&root	Leaf extract is used in cold & cough, fever and dysentery. Semi-dried stem fumes useful to cure asthma and bronchitis. Root used in rheumatism and dyspepsia. Seeds used in dropsy.
23.	<i>Codariocalyx motorius</i> (Houtt.)H.Ohashi, MUMP-0367.	Liguminosae	<i>Lam-hawai</i>	Leaves and seed	Leaves are used in ulcers and seed are astringent, insecticidal with aphrodisiac property.
24.	<i>Commelina benghalensis</i> L., MUMP-0041.	Commelinaceae	<i>Wangdengkhoi bi</i>	Whole plant	Plant extract is effective in leprosy, cough and applied against muscular pain. Leaf decoction paste is applied in boils and burns.
25.	<i>Crassocephalum crepidioides</i> (Benth.) S.Moore, MUMP-0211.	Asteraceae	<i>Terapaibi</i>	Whole plant	Fresh and boiled twig decoction is used in case of stomach disorder, cuts, wounds and burns. Fresh leaves and shoots are cooked and the soup is taken a glassful after food everyday for a week to cure stomach ulcer.
26.	<i>Crateva religiosa</i> G.Forst., MUMP-004362.	Capparaceae	<i>Loyum- lei</i>	Leaf, bark & flowers	Leaf juice is used in stomach disorders and urinary complaints. Bark is demulcent, stomachic, laxative, antipyretic & tonic. Flowers are astringent and cholagogue. Leaf is boiled along with little water and it is applied in muscular sprain.
27.	<i>Curcuma amada</i> Roxb., MUMP-004361.	Zingiberaceae	<i>Yai-heinou nambi</i>	Rhizome	Fresh rhizome is useful for intestinal worm infection. Rhizomes are carminative, stomachic and are used on contusions and sprains.
28.	<i>Cuscuta reflexa</i> Roxb. MUMP-1252.	Convolvulaceae	<i>Uri- hidak</i>	Whole plant	Plant decoction is given in chronic fevers and jaundice. Seeds are purgative, carminative, anthelmintic. Plant extract is used in flatulence and liver complaints. Plant decoction is used to bath against skin infections.
29.	<i>Cymbopogon citratus</i> (DC.) Stapf, MUMP-0322.	Poaceae	<i>Houna</i>	Leaves	Leaves are used as an ingredient for the preparation of a local hair lotion (Chenghi).The essential oil is used as an insecticide against mosquitoes and as a deodorant.
30.	<i>Cymbopogon nardus</i> (L.) Rendle., MUMP-0155.	Poaceae	<i>Charot</i>	Leaves	The decoction of the leaves with other plants is used in traditional hair lotion. The oil from the plant is used as perfume. Infusion of leaves is stomachic.
31.	<i>Cynodon dactylon</i> (L.)Pers., MUMP-0156.	Poaceae	<i>Tingthou</i>	Whole plant	Fresh plant juice/paste is good for local application on fresh cuts and injuries to stop bleeding. Root decoction is given in dropsy and secondary syphilis. Plant juice mixed with honey is given in diabetes. Rhizome is used in urinary disorder..
32.	<i>Cyperus cyperoides</i> (L.)Kuntze, MUMP-0333.	Cyperaceae	<i>Chumthang</i>	Root	Root extract is used in liver and stomach complaints.
33.	<i>Cyperus esculentus</i> L., MUMP-1754.	Cyperaceae	<i>Chumthang makhok athotpa</i>	Rhizome	Rhizome is used in case of fever, cold and coughs problems.
34.	<i>Cyperus pilosus</i> Vahl, MUMP-1805.	Cyperaceae	<i>Chumthang makhok akanba</i>	Root	Root extract is used in liver and stomach complaints.
35.	<i>Cyperus rotundus</i> L., MUMP-1753.	Cyperaceae	<i>Sembang kouthum</i>	Rhizome	Rhizome is used in fever, bronchitis,, skin diseases and stomach problems.
36.	<i>Daucus carota</i> L., MUMP-743.	Apiaceae	<i>Gajar</i>	Seed	The seed decoction is used to regularize irregular menstruation and its high dose is taken to cause abortion.
37.	<i>Duchesnea indica</i> (Jacks)Focke, MUMP-1888.	Rosaceae	<i>Heirongkak</i>	Leaves	Leaf poultice is used in case of headache and fevers.
38.	<i>Echinochloa colona</i> (L.)Link, MUMP-1833.	Poaceae	<i>Urichak</i>	Whole plant	Plant is used in spleen and haemorrhage problems. And also used in biliousness and constipation.
39.	<i>Echinochloa crus-galli</i> (L.)P.Beauv., MUMP-1812.	Poaceae	<i>Napimaru</i>	Whole plant	Plant is used in constipation and biliousness.
40.	<i>Eclipta prostrata</i> (L.) L., MUMP-1771.	Asteraceae	<i>Uchisumban</i>	Leaves	Fresh leaf extract is used in catarrh, poisonous bites, and liver and spleen problems. Leaf extract along with little honey is given against cough and fever. And leaf paste is also applied against tooth-ache.
41.	<i>Eichhornia crassipes</i> (Mart.)	Pontederiaceae	<i>Kabokang</i>	Root	Root is used for the treatment of goitre.

	Solms, MUMP-1883.				
42.	<i>Eleusine indica</i> (L.) Gaertn, MUMP-1788.	Poaceae	<i>Pungphai</i>	Whole plant	Plant fresh extract is used in fever and small pox and also used for the treatment of kidney stone and fish poison. Plant is one of the constituents in socio-religious problems.
43.	<i>Enydra fluctuans</i> Lour., MUMP-0061.	Asteraceae	<i>Komprek tujombi</i>	Young shoots	Boiled extract used to treat urinary tract infection, dysentery, diarrhoea and diabetes.
44.	<i>Equisetum debile</i> Roxb. ex Vaucher, MUMP-004360.	Equisetaceae	<i>Lai-utong</i>	Whole plant	Stem decoction paste is used for local application on body in dropsy and hysteria by the hill people. Steam heated packet containing the plant is good for local application on back ache. Plant is boiled in water and the soup is used to take bath against skin diseases.
45.	<i>Eryngium foetidum</i> L. MUMP-0710.	Apiaceae	<i>Awaphadigom</i>	Leaves	Fresh leaf decoction is taken in case of paralysis and epilepsy. Leaf decoction is used for high blood pressure. Root soup is stomachic.
46.	<i>Euphorbia hirta</i> L., MUMP-0454.	Euphorbiaceae	<i>Pakhangleiton</i>	Whole plant	Young plant extract is used in bronchitis, asthma, colic and dysentery. And also used for healing cuts and wounds, bun wounds and bone fracture of cattle.
47.	<i>Eugenia praecox</i> Roxb., MUMP-0026.	Myrtaceae	<i>shileima</i>	Seed & fruits	Seed is used against diabetes. Bark is astringent, haemostatic, depurative and anthelmintic.
48.	<i>Fagopyrum esculentum</i> Moench, MUMP-004359.	Polygonaceae	<i>Wakhayendem</i>	Whole plant	Cooked tender shoot is eaten against diabetes. Cooked plant is commonly taken in combination with other herbs for high blood pressure.
49.	<i>Ficus glomerata</i> Roxb. MUMP-1226.	Moraceae	<i>Heibong</i>	Root, Fruits and bark	Root extract useful for dysentery and diabetes. Decoction of fruit is given in diabetes. Fruit is good for lung diseases. Latex is used for local application on boils. Bark given to cattle in rinder-pest disease. Fruit is stomachic and carminative. Decoction of bark is vulnerary.
50.	<i>Fragaria × ananassa</i> (Duch. ex Weston) Duch. ex Rozier, MUMP-004371.	Rosaceae	<i>Heijampet</i>	Whole plant	Whole plant parts boiled in water with other plant constituents and sugar candy and the soup is taken in large quantity against stone formation in the urinary tract and in kidney. Fruit is tonic and diuretic.
51.	<i>Goniothalamus sesquipedalis</i> (Wall.) Hook. f. & Thomson, MUMP-0060.	Annonaceae	<i>Leikham</i>	Whole plant	Decoction of fresh leaf drunk as remedy for stomach pain.
52.	<i>Hibiscus rosa-sinensis</i> L., MUMP-799.	Malvaceae	<i>Jubakusum</i>	Stem	Fifteen gram paste of stem bark is taken orally for five days to induce abortion.
53.	<i>Hydrocotyle asiatica</i> L. MUMP-000835.	Apiaceae	<i>Peruk</i>	Whole plant	Used against cold, cough, dyspepsia and also used as health tonic.
54.	<i>Ipomoea quamoclit</i> L. MUMP-0067.	Convolvulaceae	<i>nungarei</i>	Whole plant	Boiled extract used in curing leucorrhoea.
55.	<i>Iris sibirica</i> L. MUMP-004358.	Iridaceae	<i>Kombirei</i>	Rhizome	Rhizome decoction/paste is used as brain coolant and in hysteria.
56.	<i>Isodon ternifolius</i> (D. Don) Kudo, MUMP-1395.	Lamiaceae	<i>Khoiju</i>	Leaves and inflorescence	The decoction of the leaves and inflorescences are used for the preparation of hair lotion (chenghi). Smoke of the leaves was used as antidote of small pox. Plant decoction is used in skin diseases. Leaf ash after burning in fire is applied on forehead in headache and skin diseases.
57.	<i>Jasminum multiflorum</i> (Burm. f.) Andr., MUMP-004357.	Oleaceae	<i>Kundo macha</i>	Leaves and roots	Leaf decoction is used in skin sore and rheumatism. Leaves are used in ulcers and fever. Roots along with leaves are used in ophthalmopathy. Dried leaves are applied as poultice on ulcers.
58.	<i>Lantana camara</i> L. MUMP-1325.	Verbenaceae	<i>Nongbanlei</i>	Leaves	Used to prevent the external bleeding and also given in constipation.
59.	<i>Litsea polyantha</i> Juss., MUMP-004356.	Lauraceae	<i>Tumitla</i>	Bark, leaves & seed	Bark decoction and leaf paste is used in cut and injuries for early suppuration. Leaf paste is applied in muscle-pain of legs and arms. Bark is astringent and cures diarrhoea. Seed oil is used in rheumatism. Bark powder is used in body pain and bruises.
60.	<i>Ludwigia adscendens</i> (L.) H. Hara, MUMP-1894.	Onagraceae	<i>Ishing kundo</i>	Leaves	Leaf paste is applied in boil and burns. The plant is a constituent of poultices used for ulcers and skin diseases.
61.	<i>Lysimachia parviflora</i> Baker, MUMP-0027.	Primulaceae	<i>Kengoi</i>	Whole plant	Cooked plant is given against diabetes, piles and intestinal disorder.
62.	<i>Magnolia hodgsonii</i> (Hook. f. & Thoms.) H. Keng, MUMP-004370.	Magnoliaceae	<i>U-thambal angangba</i>	Bark & Flower	Bark is stimulant, diaphoretic, used in malaria and rheumatism. Flowers are used as insect repellants and also in perfumery. Flower is used in the

					preparation of traditional hair lotion.
63.	<i>Marsilea minuta</i> L. MUMP-0073.	Marsileaceae	<i>Eeshing yensil</i>	Whole plant	Cooked plant paste applied over wounds for blood clotting.
64.	<i>Melastoma malabathricum</i> L. MUMP-0777.	Melastomaceae	<i>Yachubi</i>	Bark, leaf & roots	Bark and leaves are used for skin irritation. Plant is used in diarrhoea, dysentery and leucorrhoea. Bark and root extract is antiseptic and used as gargle.
65.	<i>Melothria perpusilla</i> (Blume) Cogn., MUMP-000847.	Cucurbitaceae	<i>Lamthabi</i>	Whole plant	The boiled soup of the plant is regarded as one of the best medicine for treatment of jaundice in the traditional system.
66.	<i>Mimosa pudica</i> L. MUMP-1253.	Mimosaceae	<i>Lam-ikaithabi</i>	Root & leaves	Decoction of root is used in urinary complaints. Juice of leaves used in sinus, sores, piles, boils and in jaundice. Decoction of the leaves is used in uterine pains after delivery. Leaf paste applied to glandular swellings and hydrocele.
67.	<i>Mussaenda roxburghii</i> Hook.f., MUMP-1880.	Rubiaceae	<i>Hanurei</i>	Leaves & root	Leaves are used for preparation of hair lotion (chinghi). Juice of leaf is used for jaundice. Root powdered mixed with cow's urine is applied in leucoderma. Root and leaves are crushed and applied in snake bite.
68.	<i>Nelumbo nucifera</i> Gaertn., MUMP-0056.	Nelumbonaceae	<i>Thambal</i>	Leaves & flowers	Young leaves eaten fresh against diabetes; gargling of boiled flower extract to cure tonsillitis.
69.	<i>Nicotiana tabacum</i> L. MUMP-0041.	Solanaceae	<i>Hidak mana</i>	Leaves	Fresh leaf juice useful for application in insect bite. Leaf ash is used for local application in leech bite to stop bleeding. Useful for skin ailments and eradication of lice in animals. Leaves are narcotic, sedative and emetic.
70.	<i>Nymphaea pubescens</i> Willd., MUMP-1799.	Nymphaeaceae	<i>Tharo angouba</i>	Rhizome, fruit, flower & root	Decoction of rhizome given in diarrhoea. Infusion of flowers and fruits is used in diarrhoea. Roots and rhizomes are astringent, antiseptic, slightly narcotic and can be used for dysentery.
71.	<i>Ocimum basilicum</i> L. MUMP-0011.	Lamiaceae	<i>Naoseklei</i>	Young shoot & leaves	Leafy shoot paste is useful for local application on forehead against fever. Leaf juice is useful in throat complaints, earache and ringworms.
72.	<i>Oreocnide integrifolia</i> (Gaudich.) Miq., MUMP-1273.	Urticaceae	<i>U-khajing</i>	Leaves & root	Leaf is cooked-eaten for normal blood circulation. Root smashed with ginger are taken to cure rashes and skin infection. The decoction of the leaves are used in diabetes
73.	<i>Oryza sativa</i> L. MUMP-0057.	Poaceae	<i>Phou</i>	Seeds	Cooked rice mixed with charcoal powder applied to area with fractured bone for quick healing.
74.	<i>Passiflora edulis</i> Sims, MUMP-0036.	Passifloraceae	<i>Sitaphal</i>	Root & leaves	Dried root powder is taken with water once daily in the morning for four days to induce abortion. Fomentation of leaves is used against clotting of blood.
75.	<i>Persicaria odorata</i> (Lour.) Sojak, MUMP-0048.	Polygonaceae	<i>Phakphai</i>	Young shoots	Shoots used in controlling hypertension; fresh shoots eaten with chutney.
76.	<i>Phlogacanthus jenkinsii</i> C.B. Clarke, MUMP-004355.	Acanthaceae	<i>Nongmangkha ashinba</i>	Leaves	Used to cure cough and fever and also control liver enlargement.
77.	<i>Phoenix sylvestris</i> (L.) Roxb., MUMP-0034.	Aracaceae	<i>Thangtup</i>	Fruits	Young fresh fruits eaten against diarrhoea and dysentery.
78.	<i>Phyllanthus acidus</i> (L.) Skeels, MUMP-720.	Phyllanthaceae	<i>kihoree</i>	Leaves, root, seed & fruits	Root and seed decoction is cathartic. Leaves and roots paste are used as antidote to viper venom. Raw fruits are good for dyspepsia and jaundice.
79.	<i>Phyllanthus emblica</i> L. MUMP-1241.	Phyllanthaceae	<i>Heikru</i>	Fruits	Fruits are used in constipation, bleeding gums, and piles and also used as brain and nerve tonic in blood diseases.
80.	<i>Plantago erosa</i> Wall., MUMP-1265.	Plantaginaceae	<i>Yempat</i>	Leaves	Roasted leaf paste is useful for boils, muscular sprain and gout. Leaf extract is cooling and used as diuretic and astringent. Leaf decoction is useful for eye wash in eye ache.
81.	<i>Pogostemon parviflorus</i> Benth, MUMP-004308.	Lamiaceae	<i>Sangbrei</i>	Leaves & flower	Leaf juice/ infusion is used for menstrual disorder. Leaf extract is used as hair lotion (conditioning of hairs & eradication of lice). Dried leaves & flowers are used as insect repellent.
82.	<i>Polygonum chinense</i> L., MUMP-000853.	Polygonaceae	<i>Angomyensil</i>	Leaves and shoot	Used as a remedy for common fever.
83.	<i>Portulaca oleracea</i> L. MUMP-0052.	Portulacaceae	<i>Leibak Kundo</i>	Whole Plant	Boiled extract of whole plant is used in stomach disorder. Leaf juice is applied for relieving burning sensation of hand and feet, urination, relieves cough and enhance lactation in nursing mothers. Plant is used as an antibacterial, anti-inflammatory and

					anthelmintic. Leaves and stems applied externally over burns, relieve pains and healing of wound. Seeds promote flow of urine, menstrual flow and expulsion of intestinal worms.
84.	<i>Psophocarpus tetragonolobus</i> (L.) D.C., MUMP-741.	Leguminosae	<i>Tengnoumanbi</i>	Leaves and seed	Seed powder is used in cough specially for children. Young leaves used as fodder and also eaten as a vegetable.
85.	<i>Rhus semialata</i> Murr., MUMP-1216.	Anacardiaceae	<i>Heimang</i>	Leaves and fruits	The powder of the fruits mixed with egg is eaten for kidney trouble, urinary complaint due to calculus formation. The fruits are soaked in water along with common salt and used in digestion. The decoction of leaves and fruits are used as hair lotion to improve the black hair.
86.	<i>Rubus ellipticus</i> Sm. MUMP-0726.	Rosaceae	<i>Heijampet</i>	Leaves and roots	Decoction of leaves are used in urinary complaints and also used in painful menstruation. Root is used in colic.
87.	<i>Rumex maritimus</i> L., MUMP-004354.	Polygonaceae	<i>Torong-khongchak</i>	Leaves	Leaf decoction is used in burns and injuries. Leaves paste applied to ringworm and skin diseases. Seeds are aphrodisiac and root is purgative.
88.	<i>Spondias mombin</i> L., MUMP-0065.	Anacardiaceae	<i>Heining</i>	Bark, Fruit & root	Bark extract is taken against dysentery and diarrhoea. Bark extract is given in gonorrhoea. Hot fomented leaf is applied against muscular sprain and back-ache. Fruit pulp is dyspepsia. Roots are useful in regulating menstruation. Unripe fruits are sour, thermogenic, appetizer and aphrodisiac. Ripe fruits are sweet, astringent, emollient, constipating and antiscorbutic.
89.	<i>Scutellaria discolor</i> Colebr., MUMP-0790.	Lamiaceae	<i>Yenakhat</i>	Leaves	Leaf decoction is used in flatulence, constipation and indigestion. Fresh leaf paste is good for local application in snake bites and stings of poisonous insects. Decoction is used in muscular pain and rheumatic swelling.
90.	<i>Smilax ovalifolia</i> Roxb. Ex D.Dons, MUMP-004353.	Liliaceae	<i>Kwa mana manbi</i>	Root	Roots are used in venereal diseases, rheumatic, dysentery, and urinary complaints. Aerial part is boiled in water and the liquid is taken bath against skin diseases.
91.	<i>Solanum nigrum</i> L. MUMP-0021.	Solanaceae	<i>Uchi-thi</i>	Young shoots & fruits	Boiled extract used against stomach disorder, paste of ripe fruits applied to piles to reduce swelling.
92.	<i>Solanum torvum</i> Sw., MUMP-763.	Solanaceae	<i>Marumkonbi</i>	Fruits	Cooked fruits given to diabetes.
93.	<i>Solanum xanthocarpum</i> Schrad & H.Wendl., MUMP-004352.	Solanaceae	<i>Leipungkhanga</i>	Root, stem, flower & Fruits	Root is anti-asthmatic, anti-emetic, diuretic, expectorant, cough and chest pain. Stem, flowers and fruits carminative, used in the burning sensation in the feet accompanied by vesicular watery eruptions. Ripe fruits extract with little honey is taken against cough, fever, sore throat, dysentery and dyspepsia.
94.	<i>Stellaria media</i> (L.) Vill.s, MUMP-0047.	Caryophyllaceae	<i>Yerum-keirum</i>	Whole plant	Cooked plants against bronchitis and skin inflammation. Crushed leaf or paste is useful to apply on boils. Leaf juice is applied in nasal bleeding. Fresh plant decoction is used for local application on fresh wounds.
95.	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn., MUMP-004351.	Combretaceae	<i>Mayokpha</i>	Bark, fruit & leaves	Bark infusion is taken for regulation of blood pressure, liver complaints, piles and heart problems. Fruit is tonic. Bark decoction is tonic, antidiysenteric, used for fractures, ulcers, blood diseases, congestion of the liver, painful or difficult urination, heart diseases, anaemia, asthma, tumours, etc. Leaf juice is a good remedy for earache (local application).
96.	<i>Tetragium bracteolatum</i> (Wall.) Planch, MUMP-0070.	Vitaceae	<i>Monja-mahei</i>	Leaves & fruits	Boiled extract of plant used against indigestion and stomach disorder.
97.	<i>Thevetia nerifolia</i> juss. ex Steud., MUMP-004350.	Apocynaceae	<i>Utonglei</i>	Fruits, roots, bark & flowers	Immature fruit latex is applied against skin diseases. Boiled root preparation (soup) is good for regular menstrual flow. Root paste is applicable to tumours. The cardiac glycosides obtained from the kernels, bark and flowers are useful for heart diseases.
98.	<i>Vitex negundo</i> L., MUMP-004349.	Lamiaceae	<i>Urikshibi</i>	Leaves & root	Leaf decoction is useful for muscular sprain. Root decoction is used as tonic, febrifuge and as expectorant. Root infusion is used as vermifuge. Boiled leaf extract is used for fomentation in acute rheumatism. Dried leaf fumes useful for catarrh.

					Leaf decoction with rice water is useful for lice eradication and one of the good traditional hair lotions.
99.	<i>Wendlandia paniculata</i> (Roxb.)DC. MUMP-0069.	Rubiaceae	<i>Pheija</i>	Inflorescence	Leafy shoot decoction is given in cough and dysentery. Young leaves eaten as vegetables.
100.	<i>Ziziphus mauritiana</i> Lam., MUMP-004347.	Rhamnaceae	<i>Boroi</i>	Bark	Dried/raw/ripe fruits eaten for good health. Bark decoction is taken against dysentery. Dried bark powder with sugar candy is taken against excessive menstrual discharge.

Table 3: Number of plants used in curing ailments.

Name of ailments	No. of plants
Stomach disorder or Stomach ulcer	19
Skin disease	18
Fever	16
Dysentery	15
Diarrhoea	14
Cough	14
Boils, cuts and wounds	13
Muscular pain	9
Diabetes	9
Muscular pain	9
Menstrual disorders	8
Jaundice	7
Snake bites	7
Constipation	6
Liver enlargement	5
Blood pressure	4
Toothache	4
Dropsy	4
Urinary tract problems	3
Ringworm	3
Sore throat	3
Small pox	3
Backache	3
Kidney diseases	3
Bronchitis	2
Headache	2
Piles	2
Leprosy	2
Hysteria	2
Heart diseases	2
Eye infections	2
Abortion	2
Malaria	1
Lung disease	1
Beri-beri	1
Intestinal worms	1
Leucorrhoea	1

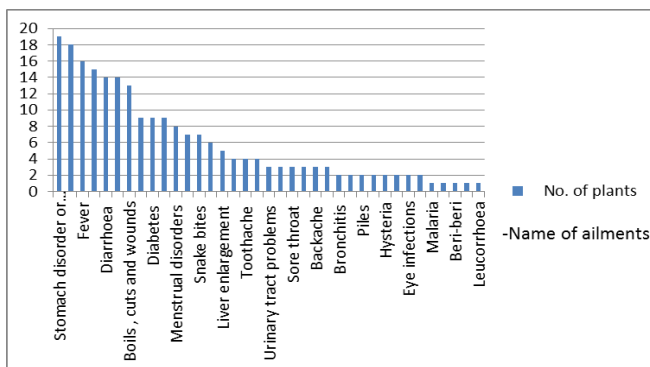


Fig 4: Number of Plants used in curing ailments.

Results and Discussion

In this study the traditional knowledge about the plants were found to be used by the different people of Bishnupur District. The study reveals that 100 (hundred) plant species belonging to 56 (fiftysix) families and 87 (eightyseven) genera are used by the people of Bishnupur District for health care. During the survey the researchers collected the traditional knowledge of medicinal plants from different sites of this District. Among the diseases treated, Stomach disorder or Stomach ulcer is the most common disease and seventeen (19) plant species are used to treat this ailment. Other more prevelant diseases treated by medicinal plants are skin diseases (18), Fever (16), dysentery (15), diarrhoea (14), cough (14), boils, cuts and wounds (13), muscular pain (9), diabetes (9), muscular pain (9), menstrual disorders (8), jaundice (7), snake bites (7), constipation (6), liver enlargement (5), blood pressure (4), bronchitis (2), toothache (4), dropsy (4), urinary tract problems (3), ringworm (3), sore throat (3), small pox (3), backache (3), kidney diseases (3), headache (2), piles (2), leprocy (2), & hysteria (2), heart diseases (2), piles (2), eye infections (2), abortion (2), malaria (1), lung disease (1), beri-beri (1), intestinal worms (1), and leucorrhoea (1), etc. Among the plant parts, leaves are predominantly used followed by whole plant, bark, root, seeds and rhizome. The method of application varies according to the degree of ailment, kind of disease and nature of medicinal plants. The plant parts are commonly used in the form of decoction, paste, juice etc.

The data collected shows that majority of the remedies are taken orally, mode of preparation is from a single plant; mixtures of other plants are rarely used by the people of Bishnupur District. Nowadays, due to lack of interest among the younger generation as well as their tendency to migrate to cities to discard their traditional life style, there is possibility of losing this wealth of knowledge as the traditional culture is disappearing. Hence, the authors stress upon the urgent conservation and protection of the precious wealth of medicinal plants from the region.

Some noteworthy medicinal plants which are used by the people of Bishnupur district in curing diseases and ailments are *Caesalpinia bonducella* L., *Plantagoerosa* Wall., *Oreocnide integrifolia* Miq., *Ficus glomerata* Roxb., *Terminalia arjuna* (Roxb.) Weight & Arn., *Melothria perpusilla* (Blume) Cogn. etc. And some important plants which are used by the people of this district to induce abortion are *Passiflora edulis* Sims, *Daucus carota* L., and *Hibiscus rosa-sinensis* L. The plant species which are used in snake bites or poisonous bites are *Amaranthus viridis* L., *Eclipta prostrata* (L.) L. And *Scutellaria discolor* Colebr. In this study rare species *Iris sibirica* L. was found in Bishnupur district and were thinly distributed. Majority of the medicinal plants of the district were found to be growing in wild.

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