ABSTRACT:

Background: Nepal is rich in culture, tradition, knowledge of traditional health practices. In fact, traditional healing practices have been a strong cultural and scientific heritage in this country. The majority of people (80%) in Nepal continue to rely on these practices of health care. Practitioners of this traditional medical wisdom are called as traditional healers (THs). THs are prevalent in every ethnic group and community. Majority of rural people are very dependent on traditional medical practices of THs who mostly use locally available medicinal herbs and spiritual methods to treat diseases. Therefore, this study had investigated whether traditional healers had the knowledge, skill, practices and technology of diagnosis and treatment of diseases which could be utilized to assist in providing health care services to rural people in Nepal. Materials and Methods: Using a cross-sectional research design a total of 25 traditional healers from Kapilvastu district of Nepal were interviewed. Responses on the following topics were obtained: socio-demographic characteristics, knowledge, skill and practice regarding medicinal plants use. Descriptive statistics was used to analyze the responses. Results: Traditional healers’ knowledge, skill, practice and technology of diagnosis and treatment of diseases were related to tradition and culture of particular ethnic groups and communities. Majority of THs (n=25) are male (73.33%) and Hindu (88.29%) by religion. They mostly used medicinal plants (85.6%) singly or in combination with shaman, spiritual and others techniques. Less than 22.5% of THs had got training from health related institutions formally. Rest of the THs had acquired the knowledge and skill of traditional healing practices from ancestors, colleagues, self-study, from guru (traditional teachers), grandparents etc. Some of the both trained and untrained traditional healers would treat 52 types of diseases including gastro-intestinal and cardiac disorders, HIV , cancer, mental disorders, fractures and other common diseases with 79 known medicinal plants. Conclusion: The results indicate that traditional healers (THs) have acquired traditional medical knowledge, skill, practice and technology from their ancestors, teachers, trainings etc. They use medicinal plants as a means of treatment for providing primary health care to local people in the communities. This is significant considering, that are serving the health needs of a large percentage of the Nepalese rural population. However, further health policy and development of controlling mechanism for them on the treatment related issues is necessary. Keywords: Ayurveda nutraceuticals, Nutraceutical, Kathmandu, Nepal
BACKGROUND

Human beings have been depended on plants from time immemorial.\(^1\) The Rig-Veda written during 4500 BC to 1600 BC is believed to be the oldest repository of human knowledge mentioned about medicinal usages of plants in Indian subcontinent. Although, such old documentation is still not rediscovered, but the knowledge on plant utilization is believed to be older than the vedic period. In Nepal, Traditional medicine is used extensively by majority of the population, that includes Ayurveda, Acupuncture, Unani and various forms of indigenous medicine and Tibetan Amchi medicine.\(^2\)\(^5\)

In many cases, traditional knowledge has been orally passed through generations from person to person. Some forms of traditional knowledge are expressed through stories, legends, folklore, rituals, songs, and even laws.\(^6\) Traditional medicine is also known as indigenous or folk medicine; comprises knowledge systems that developed over generations within various societies before the era of modern medicine. Traditional medical practices vary among geographic regions and cultures. Three factors legitimize the role of the healers; their own beliefs, the success of their actions and the beliefs of the community. Traditional medicine comprises those practices based on beliefs that were in existence often for hundreds to thousands of years before the development and spread of modern medicine, and which are still in use today.\(^7\)

The World Health Organization (WHO) defines traditional medicine (TM) as “the sum total of knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures that are used to maintain health, as well as to prevent, diagnose, improve, or treat physical and mental illnesses”.\(^8\)

In the developing countries, 70–80% of the population relies on medicinal plants for primary health care.\(^9\) Globally, millions of people in the developing countries rely on medicinal plants for primary health care, income generation and livelihood improvement.\(^10\) The use of plants as medicine is slowly increasing in the developed world\(^11\) because they have minor or no side effects.\(^12\) According to WHO, about 80% of the world’s population, especially in the rural areas depends on herbal medicine for their healthcare needs.\(^13\) Indigenous people living on their traditional territory largely rely on medicinal plants for healthcare and they are therefore rich in ethno medicinal knowledge.

In countries with limited access to modern medicine, THs are often the main source of health care providers in both rural and urban areas. In some countries in Asia and Africa, 80% of the population use traditional medicine for primary healthcare needs.\(^14\) In Nepal, there are more THs than Allopathic practitioners (APs). APs are often concentrated in urban areas reducing medical care to rural access.\(^15\)

Although there is wide use of herbal medicine, traditional knowledge of the use of medicinal plants is influenced by rapid urbanization, migration, climate change, and the increasing number of modern healthcare systems throughout the world, including in Nepal.\(^16\)-\(^20\)

In Africa up to 80% of the population uses traditional medicine (TM) to meet their health care needs.\(^15\) In Asia and Latin America, populations continue to use TM as a result of historical circumstances and cultural beliefs. In many Asian countries TM continues to be widely used, even though modern medicine is often readily available.

Nepal is rich in culture, tradition, knowledge of traditional healing practices. In fact, traditional health practices have been a strong cultural and scientific heritage in this country. It includes plant, animal, and mineral-based medicines, massage, spiritual therapies, and varieties of other techniques unique to different regions and cultures.\(^15\) Traditional knowledge (TK), indigenous knowledge (IK) and local knowledge (LK) generally refer to knowledge systems embedded in the cultural traditions of regional, indigenous, or local communities. Traditional knowledge includes types of knowledge about traditional technologies of subsistence.\(^21\)

Nepal is a natural storehouse of medicinal plants.\(^22\)-\(^24\) Nepal’s location in the center of the Himalayan range places the country in the transitional zone between the eastern and western Himalayas. Nepal’s rich biodiversity is a reflection of this unique geographical position as well as its altitudinal and climatic variations. There are between 35,000 and 70,000 plant species that have been used for medicinal purposes in the world,\(^5\) and about 6,500 species of which occur in Asia.\(^2\) Nepal is ranked as 9\(^{th}\) among the Asian countries for its floral wealth with an estimated 9,000 species of flowering plants.\(^25\) So far, 6,653 species of flowering plants have been reported.\(^26\) Among these, about 50% fall under the rubrics
residing in different geographical belts of Nepal depends on wild plants to meet their basic requirements and all the ethnic communities have their own pool of secrete ethnomedicinal and ethnopharmacological knowledge about the plants available in their surroundings, which has been serving rural people with its superiority.

These plants are also important for local livelihoods and income generation, and they do fetch higher market prices. The global demand for medicinal plants is increasing and, in India alone, the market is expanding at an annual 20 percent. Thousands of tons of raw material are exported every year, mostly to India, but also to Asia, Europe and America.

Plant constituents continue to be a vital part of Western medicine, and are still considered an important source of novel compounds in the field of drug discovery. The practice of seeking evidence helps in identifying important medicinal plants and may also lead to the development of new or important pharmaceutical drugs with future bio-prospecting potential. Numerous drugs have been introduced to international markets through validation of traditional medicines, indigenous therapies and ethnopharmacological practices.

In the past in many rural areas of Nepal, traditional medicinal knowledge and practice was passed down entirely via oral tradition based on a lineage mode of transmission and personal experience. More recently, however, knowledge transfer has also occurred through formally recognized school level education.

National and regional demands for herbal medicine are accelerating, and globalization of herbal medicine, along with uncontrolled exploitative practices and lack of concerted conservation efforts, now threaten the country’s medicinal plants. Sustainable utilization and management of medicinal plants based on traditional knowledge is therefore necessary.

Due to changing life style, extreme secrecy of traditional healers and negligence of youngsters, the practice and dependence of ethnic societies in folk medicines is in rapid decline globally, therefore ethnobotanical exploitation and documentation of indigenous knowledge about the usefulness of such a vast pool of genetic resources is deliberately needed.
This study was cross-sectional for documentation of traditional medicinal uses of plants by local people in Kapilvastu district of Nepal. The aim of the study was to enlist medicinal plants found in the district.

**MATERIALS AND METHODS**

**Study area:** Kapilvastu is one of the districts of Lumbini Zone, Western Region of Nepal. The district, with Kapilvastu municipality as its district headquarters, covers an area of 1,738 square kilometres (671 sq mi) and as of 2001 had a population of 481,976, which increased to 571,936 in 2011. The name of district comes from the sage Kapila and his followers who built here a city called Kapilavastu. This district was a part of the ancient Shakya Kingdom ruled by King Suddhodana who was the father of Gautama Buddha. Climatic zones namely lower tropical (<300 m or 1000 ft.) covers 86.8% of area, upper tropical (300 to 1000 m or 1000 to 3300 ft.) covers 12.0% of area and subtropical (1,000 - 2,000 m or 3,300 to 6,600 ft.) covers 1.2% of area. The summer is hot with temperature above 27°C and winter temperature remains below 15°C.

Kapilvastu is bounded by Rupandehi District to the east, Dang Deukhuri District in Rapti zone to the northwest, Arghakhanchi District to the north, Balrampur district, Awadh region to the west and Siddharthnagar no.1. It is situated at a height of 93 to 1,491 metres (305 to 4,892 ft) above sea level. Geographically, the district can be divided into the low land plains of Terai and the low Chure hills. It has three forests cover 70,865 ha or 41% of total area of Kapilvastu district; 30% of forests are on hilly terrain and the rest in the plains.

**Study design and methods:** It was descriptive cross-sectional study with stratified sample random sampling method for selection of participants. Study subjects were 25 traditional healers from the district who were willingly to participate in the study during data collection period using semi-structured questionnaires translated into local language of the participants. Participants were selected on the basis of their traditional knowledge and practices in the local communities. The study area was stratified into three zones i.e. Terai, Hilly and Mountainous. Similarly, it is politically divided into five development regions. Ayurveda Health Centers, Ayurveda Aushadhalaya (Ayurveda Dispensary) and Netra Jyoti Sangh of the district were consulted to gather information of traditional healers in the district.

**Data analysis:** Data collectors were visited to their clinics and homes. All the information collected from field were checked thoroughly and rechecked for consistency. Data were edited, finalized and coded for entry in SPSS Version 18.0 software. Data were presented in frequency, bar and chart.

**RESULTS**

**Socio-demographic characteristics of traditional healers**

**Sex:** In general, (n=25), 88% of respondents were males and only 12% were females. The gender disparity seems to follow the lines of the role of women in patriarchal societies.

**Age:** Findings suggested generally that Traditional healers are mostly senior citizens. The survey results showed that the greater proportion of THs (84%) were above 50 years, whilst only 16.00% were below 50 years. It was found that there is a decline in the number of practitioners as one goes down the age groups. Discussions further revealed that this trend was mainly due to the lack of interest of the youth in becoming apprentices.

**Education:** Study showed that there was a general decrease in number as one goes up the educational ladder. The survey revealed that 44% of respondents had never been to school, they just knew to read and write. The overall literacy rate of the population 5 years of age and above was 66%. The literacy rate in urban areas was 82% compared to that of 63% in rural areas.

**Ethnicity:** Generally, majority of
respondents were upper caste groups (60%) who were well aware in the community. Janjatis were the lesser, whereas the Dalit were the least involved in this profession. Racial influence is also seen in this practice. **Religion:** In terms of racial composition (n=25), The majority were Hindu (92%). THs believe on traditional faith although traditional beliefs vary from one ethnic group to the other, the belief in ancestral spirits is common to all. **Occupation:** The survey showed that most of the traditional healers (68%) involved in agriculture related occupation. Traditional healers were known in the communities by the name of Vaidhya (Traditional healer, 16%), Jadibuti byabashayi (Herb traders, 4%) and Dhami (Shaman, 12%).

**Medicinal Plants and Their usages**

In this study, there were 79 medicinal plants that were identified from the traditional healers in the district. Local name, botanical name, family, parts’ used, dose, dose forms, preparations of the individual medicinal plants were documented during this study presented in the table no. 1 and 2.

**Classification of Medicinal Plants:** Generally, THs (n=5) used herbs, shrubs and trees for medicinal purposes. Majority of THs (27%) used trees for medicinal purposes. Out of them, 26% of THs used shrubs, 24% of THs used herbs and 24% used all parts of plants for medicines. It is evident that all parts of plants could be used as medicinal purposes. In Ayurveda, ten parts or whole plants were used as raw material for preparation of Ayurveda remedies. Generally, THs used herbs, shrubs and trees for medicinal purposes. Majority of THs (27%) used trees for medicinal purposes. Among them, 25.90% of THs used shrubs, 23.50% of THs used herbs and 23.50% used all types of plants for medicines. It is evident that these all groups of plants can be used as medicinal purposes. In total, ten parts or whole plants were used as raw material for preparation of herbal remedies.

**Geographical distribution of medicinal Plants:** Majority of THs (55.30%) used medicinal plants from terai region to prepare local remedies for their clients, 34.20% of HTs used medicinal plants collected from hilly region and 10.50% of THs used medicinal plants collected from mountain region in the district. These data show that mountain, hill and terai were equally fertile for medicinal plants.

**Family of Medicinal Plants:** In this study, 79 medicinal plants were identified belonging to 46 families. Leguminaceae or Fabaceae was the most common family having more species in the area. In total 14 species of Leguminaceae family was collected during field visit.

**Figure No. 2: Family of Medicinal Plants**

The other common families were Apocynaceae, Asclepiadaceae, Moraceae, Zingiberaceae, Euphorbiaceae, Labiatae, Lytheraceae, Combretaceae. Liliaceae, Acanthaceae, Cucurbitaceae, Oleaceae and Punicaceae.

**Parts of Medicinal Plant used for Preparation in dose forms:** In this study (n=25), THs reported that bark, flower, fruit, latex, leaf, rhizome, root, seed, stem, tuber and whole plants were used to prepare various dose forms. THs used bark, flower and root to prepare dose forms of decoction, juice, paste and powder; fruit was used to prepare dose forms of decoction, juice, paste, oil and powder; leaves were used to prepare dose forms of decoction, juice, oil massage, paste and powder.

**Figure No. 3: Parts of Plant used in preparation of dose forms**

Mainly seed, tuber and whole plant were used to prepare juice, paste and powder. Stem used to prepare decoction, juice and paste. Latex and rhizome were only used to prepare paste figure no.3. In this study Bark, rhizome and latex were obtained from tree, herb and climber respectively.
Tuber and whole plants were mostly collected from herbs. Flower and root were frequently harvested from tree. Stem was collected from climber and herbs. It is concluded that medicinal plants of different categories have different parts used for medicinal value.

**Herbal Drug Form:** In this study (n=25), majority of traditional practitioners used powder (39%) followed by juice (30%) for their clients. Paste and decoction were also used in remarkable level. Massage oil and other oil were least used in traditional healing practices in figure no.4.

![Figure No. 4 : Herbal Drug Form](image)

This result is found of complicating method of oil preparation. Powder, juice, decoction and paste can be easy prepared in the resource limited condition. That is why, these are frequent in prescription.

**Route of Drug Administration:** Local application and oral was mainly two route of drug administration of traditional healing practices in Kapilavastu district. Powder, juice and decoction were mostly used through oral route whereas paste and oil were applied locally on the body part wherever required.

![Figure No. 5: Rout of Drug Administration](image)

In this study, powder was the most frequently used drug in traditional healing practices. Majority of THs used powder (57%) followed by juice (47%); and then decoction (19%) through oral route. Externally, paste (25%) was frequently used dose form. Oil and oil massage were less considered for local application by THs.

**Seasonal availability of Medicinal Plants:** This survey (n=25) revealed that majority of THs (56%) found medicinal plants available in rainy season; the least of THs (8%) claimed that medicinal plants found in autumn season. On the other hand, a large group of THs (36%) did not response to this statement. Generally, the appropriate time of collection of herbs is October to December i.e. autumn season. Rainy season is appropriate for growing herbs. Medicinal plants can avail easily in this season. It is imperative that identification of medicinal plants can be performed in the pre rainy, rainy and post-rainy season.

**Prevalence of major diseases in traditional healing practices:** In this study (n=25), THs (22%) claimed that patients of gastrointestinal disorders commonly visited their clinics in the district. Clients of respiratory disorders, urological disorders, orthopedic disorders, skin disorders, neurological disorders and cardiac disorders were chronologically the second, third fourth, fifth and sixth among the most common disorders treated in the clinics of traditional healers. The THs of the district also treated cancer patients with herbal remedies shown in the figure 6. The gastro-intestinal disorders are the most common which can be implicated with unhygienic condition of the rural people.

**DISCUSSION**

The study has included 25 THs from the study district. The profile and attitudes of those excluded from study may
vary from the interviewed one. The sample was also small considering the numbers of THs in Nepal. The newer THs may be excluded because of lack of information.

Socio-demographic characteristics of traditional healers

Sex: In general, 88.00% of respondents were males with only 12.00% females. The gender disparity seems to follow the lines of the role of women in patriarchal societies. It might be attributed to the fact that the act of healing is held sacred by traditional families thus mostly passed on to male children who were considered heirs to families especially in the Terai and Hilly regions of the country where the system of inheritance is patriarchal. In patriarchal societies, males had to bear all major responsibilities for caring, feeding and social relations and females look after household activities.

Age: Findings suggested generally that Traditional healers are mostly senior citizens. The survey results show that the greater proportion of (84.00%) THs were above 50 years, whilst only 16.00% were below 50 years. It was found that there is a decline in the number of practitioners as one goes down the age groups. Discussions further revealed that this trend is mainly due to the lack of interest of the youth in becoming apprentices. Generally, the notion is that formal education and modernization had created the situation that made it unattractive to become a traditional healer. The situation is obviously a threat to the survival of the profession as majority of practitioners were old and weak and might not be able to practice in the near future. Considering the fact that documentation on the practice of traditional medicine in Nepal is limited, this revelation poses a challenge to any intervention that aims at preserving knowledge of the practice. Education: Study shows that there is generally decrease in number as one goes up the educational ladder. In a total of 68% of THs were literate.

Ethnicity: Generally, majority of respondents were upper caste groups (60%) who were aware in the community.

Religion: The majority were Hindu (92%). THs believe on traditional faith although traditional beliefs vary from one ethnic group to the other, the belief in ancestral spirits is common to all. This also makes documentation on the practice difficult as some aspects cannot be explained.

Occupation: The survey shows that most of the traditional healers (68%) involved in other occupation i.e. related to agriculture. Traditional healers were known in the communities by the name of Vaidhya (Traditional healer, 16%), Jadibuti byabashayi (Herb traders, 4%) and Dhami (Shaman, 12%). A study in Tanzania got similar findings on sex, age and educational level of traditional healers. The study found that Youngers are less interested in traditional medical practices which may cause threat to existence of traditional medical practices. In several studies showed that the majority of patients visiting traditional healers were from rural area who was mostly lower class and low income generating citizen. This is similar to the study done in Trinidad.

Medicinal Plants and Their usages

Classification of medicinal herbs: Generally, herbs, shrubs and trees are used for preparation of medicines. It is evident that all types of plants can be used as medicinal purposes. It was found that bark, flower, fruit, latex, leaf, rhizome, root, seed, stem, tuber and whole plants were used as raw material for preparation of herbal remedies. In this study Bark, rhizome and latex were obtained from tree, herb and climber respectively. Tuber and whole plants were mostly collected from herbs. Flower and root were frequently harvested from tree. Stem was collected from climber and herbs. It is concluded that medicinal plants of different categories have different parts used for medicinal value. Most of the plants used in the district were found under Leguminaceae family followed by Apocynaceae, Asclepiadaceae, Moraceae and others.

Geographical distribution of medicinal herbs: Most of the plants are collected from terai hilly region. A few of herbs were collected from mountain region to prepare medicines for their clients. They used the least number of herbs from mountain because of far away from the terai district. However, this data explains that mountain, hill and terai were equally fertile for medicinal plants. It can be
claimed that any kind of diseases can be treated by locally available herbs. That is why, local herbs must be preserved for sustainable utilization.

MAPs Parts’ used in Drug Preparation: In this study, data collectors recorded bark, flower, fruit, latex, leaf, rhizome, root, seed, stem, tuber and whole plants from the traditional users’ group that were used for drug preparation. In general, these parts of herbs were used for preparation of powder, paste, oil massage, oil, juice and decoction. Fruit, leaf and whole plants of herbs were used for preparation of powder and juice. It is found that whole plant, leaf and bark of herbs were frequently used in traditional pharmaceutical industry and healing practices.

This study findings were similar to a study conducted in Addis Baba which also found plants, animals and minerals as a source of medicine.67

Herbal Drug Form: Powder and Juice were frequently used by local traditional healers whereas Massage oil and other oil were least used in traditional healing practices. Complicating method of oil preparation may be the reason behind less use in the patients. Powder, juice, decoction and paste can be easy prepared in the resource limited condition. In this study, powder was the most frequently used drug in traditional healing practices.

Rout of Drug Administration: Local application and oral was mainly two route of drug administration in traditional healing practices. Powder, juice and decoction were mostly used by oral route whereas paste and oil were applied locally on the target area.

Season of availability of medicinal herbs: Most of the medicinal herbs were found in rainy season; the least of THs (8.00%) claimed that medicinal herbs found in autumn season. Generally, the appropriate time of collection of herbs is October to December i.e. autumn season. Rainy season is appropriate for growing herbs. Medicinal herbs can avail easily in this season. It is imperative that identification of medicinal plants can be performed in the rainy season.

Types of major diseases in the community: In this study, most of the patients complaining gastrointestinal disorders visited traditional clinics in the district. There was also prevalence of respiratory disorders, urological disorders, orthopedic disorders, skin disorders, neurological disorders and cardiac disorders in decreasing order.

These findings were supported by a study conducted in Rasuwa district of Central Nepal which recorded a total of 60 medicinal formulations from 56 plant species. Medicinal plants were used to treat various diseases and disorders, with the highest number of species being used for gastrointestinal problems, followed by fever and headache. Herbs were the primary source of medicinal plants (57% of the species), followed by trees (23%). In Rasuwa district, local traditional practitioners treat ophthalmological problems, tooth ache, kidney problems, and menstrual disorders.45

Similarly, in Hulma district of Nepal, medicinal plants were used to treat human as well as animal diseases by local knowledgeable people. In the study area of the district, a total 161 plant species belonging to 61 families and 106 genera used for treating 73 human and 7 veterinary ailments had been identified. There had also been documented culinary uses and additional uses for 67 and 33 species of medicinal plant species respectively. Most medicines were prepared in the form of powder and used orally. Roots were most frequently used plant parts. The uses of 93 medicinal plants were not mentioned in any previous studies.50

In Parbat district of Nepal, a total of 132 ethno medicinal plant species belonging to 99 genera and 67 families have been documented from two ethnic communities Magar and Majhi. These plants were used to treat various diseases and disorders grouped under 12 disease categories, with the highest number of species (61) being used for gastrointestinal, parasitic and hepato-biliary disorders, followed by blood and lymphatic system category.68

In a study conducted in far western region of Nepal by Rokaya MB et.al documented a total of 947 species belonging to 158 families and 586 genera used to treat gastrointestinal disorders in Nepal. Diarrhea was the disorder treated by the highest number of species (348), followed by stomachache (340) and dysentery (307). Among the reported species, five were endemic to Nepal, whereas 16 orchid species were protected under CITES Appendices II and III.

Types of drugs’ Preparation: THs used to prepare power (Dhulo), liquid, paste, pill and oil, etc. THs prepared these medicines in their own pharmacies. The sources of medicine for the majority of interviewed traditional healers were plants, animal by-products and minerals. All healers used both dry and fresh parts of plants for preparation of remedies. Crushing, powdering, squeezing and pounding
were indicated by majority of the healers as the methods of preparations of herbal drugs.

**Uses of medicinal plants by Traditional healers in the communities of the districts:**

In total 79 species were used by traditional headers in the district using in different disorders. Most of the species were locally available plants. Some of the them were collected by traditional healers from other districts and market.

These findings were supported by a previous study that medicinal herbs showed the main ingredients of traditional therapies, and they were considered a main lifeline and frequently were the first choice in the Baitadi, Darchula and Dadeldhura districts of far western region of Nepal. Use of Cordyceps sinensis as an aphrodisiac, Berberis asiatica for eye problems, Bergenia ciliata for disintegration of calculi, Sapindus mukorossi for dandruff, and Zanthoxylum armatum for toothache were the most frequently mentioned. Medicinal plants were inseparable from local livelihoods because they have long been collected, consumed, and managed through local customs and knowledge.  

In another study conducted in terai forest of western Nepal has recorded 66 medicinal plant species belonging to 37 families and 60 genera. These plants were used to treat various diseases and ailments grouped under 11 disease categories, with the highest number of species (41) being used for gastro-intestinal disorders, followed by (34 species) dermatological disorders. Herbs (53%) were the primary source of medicine, followed by trees (23%). Curcuma longa (84%) and Azadirachta indica (76%) are the most frequently and popularly used medicinal plant species in the study area. Acacia catechu, Bacopa monnieri, Bombax ceiba, Drymaria diandra, Rauvolfia serpentina, and Tribulus terrestris were threatened species which needs to be conserved for future use.  

In Sindhuli district of Nepal, a total 74 medicinal plant species has been recorded from local traditional healers and tribal chiefs’ aged 40-60 years for treating 24 diseases like indigestion, diarrhea, dysentery, cough and cold, fever etc. Among these medicinal plants, 23 species have been used for the external application, 45 species for internal use and 6 species for veterinary medicine.  

**Indication, use, dose, route of drug administration and duration:**

In this study, THs of the communities reported that they used medicinal plants found in the districts as well as other medicinal plants collected from different parts of the country. THs claimed that they treated 52 health disorders or diseases traditionally used parts of plants or whole plant in different health problems like gastro-intestinal, cardiac, respiratory, cancer and other disorders and diseases in different dose forms (podwer, decoction, juice, paste, etc.) prescribed for appropriate dose in a day for a time of period through local or oral route.

The above findings were supported by various studies conducted in different parts of the country. A previous survey study in Chitwan National Park, Nepal had been recorded 185 plant species having medicinal value that had been used to treat 126 different human diseases whereas 3 species have been used for cattle diseases. The result revealed that the fixed numbers of pieces of plant’s parts in garland made of either the root or steams were also worn to cure diseases like fever, headache, jaundice, cough etc. This practice is also common in other region of the country.

In a survey carried out in Jajarkot district of Nepal reported 60 species of medicinal plants used by the local people for treating 25 types of diseases. The study showed that the common people used fresh medicinal herbs whereas the healers used both dried and fresh herbs.  

In a survey conducted in Sindhuli district of Nepal among various ethnic groups and communities of 101 household documented 102 medicinal plant species belonging to 59 families and 92 genera used in traditional medicines for curing different diseases like ENT problem, respiratory disease, trauma, jaundice, skin disease etc. The study revealed that faith healing system (Tantra/M mantra) was more common in lower caste whereas practice of herbal treatment was more common in the upper cast people. The study had also showed the poverty relation with traditional medicine that was related to utilization of medicinal plants.  

A study in Bajhang district of Nepal had been documented 25 medicinal plant species for curing different ailments like asthma, bronchitis, body pains, blood purification, dysentery etc. The duration of treatment varies from a week to years. The study reported no side effects of herbal remedies in the study area.  

In Shey-phoksundo National Park of Nepal 2001, Lama et.al had documented 407 plants including 100 medicinal plants and the indigenous use of these medicinal plants
Another study conducted in Shey-Pokundo National Park of Nepal has recorded 529 species of medicinal plant species and reported 94.3% of the total medicinal plants. These plants have been used in traditional medicine by the amchis for remedies of more than 50 ailments like cough and cold, dysentery, typhoid, rheumatism, etc. A survey among various communities of Parbat and Kaski districts reported that the local communities have been practicing traditional medicine since time immemorial with 83 medicinal plant species belonging to 51 families and 77 genera used for remedies of 52 different ailments like fever, constipation, menstrual disorder, sore throat, heart diseases, typhoid, infertility etc. The study has further been documented their mode of preparation, parts used, quantity and route of administration, etc. In darchula district of Nepal, a study reported that the local people had been using 78 species of medicinal plants belonging to 50 families for the remedy of 39 different types of human disorder. In Sindhpulchok district of Nepal, a study documented 42 species of plants belonging to 34 families for curing 45 different types of ailments along with the doses and route of administration. In Palpa district of Nepal 2004, a study reported total of 50 different species of plants belonging to 45 families were found in the practices for the remedy of diseases like measles, anthelminthic, sinusitis, bone fracture, ear infection, etc. Medicinal plants were major sources of health care of rural and remote people in Nepal. Folklore and traditional healing practices are popular among those people living in scarcity of allopathic medicine.

CONCLUSION

Traditional healing practices are mainly practiced by traditionally learned or knowledge acquired people in the communities having knowledge of medicinal plants and their uses in various ailments. In this study, 79 medicinal plants were used by traditional healers of Kapilvastu district belong to 46 families and 79 genera for remedies of 52 diseases like diarrhea, dysentery, fracture, dislocation, diabetes, asthma, common cold, cough, fever, pain. Gastrointestinal disorders are the most common among other disorders treated by traditional healing practices. It is interested that some disorders like cancer, epilepsy and cardiac disorders were also treated by the traditional healers. Leguminaceae or Fabaceae is the most common family which belongs to the most of the medicinal plants species in the area. Bark, leaf and whole plants of medicinal herbs are frequently used for preparation of local remedies in the form of powder, juice, paste, liquid, oil, etc. Mostly, THs collect herbs from local farm, forest or sometimes purchase from local traders and locally prepared medicines were administered through oral route.

They use medicinal plants as a means of treatment for providing primary health care to local people in the communities. This is significant considering, that are serving the health needs of a large percentage of the Nepalese rural population. However, further health policy and development of controlling mechanism for them on the treatment related issues is necessary.

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LIMITATIONS OF THE STUDY:

There is a possibility of selection bias due to the unique circumstances of the study which allowed the researchers to interview THs who included in the sample. The profile and attitudes of those who had not been included in the study may vary from the interviewed respondents. The sample was also small considering the number of THs in Nepal. Lastly, the newer THs may be excluded as they were not listed in the District Ayurveda Centers and Netra Jyoti Sangh or popular in their communities.

RECOMMENDATION

This study recommends that interventions targeted at usage and preservation of medicine plants should be:

- A regular platform for experience sharing between the traditional healers and experts of these sectors.
- Promoting documentation on knowledge, skill, practices and technology and indigenous medicinal plants for intellectual properties right.
- Identifying the capacity gaps and building the capacity of traditional healers to beware upon the preservation and protection of medicinal plants.
- Need further studies on traditional medicinal plants practices.
CONFLICT OF INTEREST: Author declares that there is no conflict of interest.

SOURCE OF SUPPORT: None

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Uses of Medicinal Plants by Traditional healers in communities of the district: THs of the communities reported that they used local or oral route shown in table no. 1.

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Table no. 1: Pharmacological aspects of Medicinal plants used in communities of Kapilvastu district

| S.N | Latin Name               | Types         | Parts' used | Indication                  | Type     | RDA | Drug’s Schedule | Dosage | Duration |
|-----|--------------------------|---------------|-------------|------------------------------|----------|-----|------------------|--------|----------|
| 1.  | Lalgedi Abrus precatorius Linn. | Climber       | Fruit       | Asthma                       | Powder   | Oral| Thrice in a day | 5-10 ml | 2-4 weeks|
|     |                          |               | Seed        | Paralysis & Stiffness of joints | Paste | L.A.| Once in a day | APR | 1 month |
|     |                          |               | Leaf        | Skin disorders               | Powder,Juice | L.A.| Twice times in a day | APR | 1 month |
| 2.  | Babul Acacia Arabica (Lam.) Willd. | Tree         | Root & Bark | Gastritis                   | Powder,Juice | Oral| Twice times in a day | 10-15 ml | 30 days |
|     |                          |               | Bark        |                              |          |     |                  |        |          |
| 3.  | Sikkaakai Acacia sinuta (Lour.) Merr. | Shrub        | Fruit       | Neurological disorders       | Powder  | Oral| Twice times in a day | 3 gm. | 3-6 months |
|     |                          |               |             |                              |          |     |                  |        |          |
| 4.  | Bojho Acorus calamus Linn. | Herb | Tuber | Common cold               | Powder | Oral| Twice times in a day | 1 tsf | 15-20 days |
|     |                          |               | Seed        |                              |          |     |                  |        |          |
| 5.  | Asuro Adhatoda vasica Nees. | Shrub | Whole Plants | Gastritis     | Powder | Oral| Twice times in a day | 1 tsf | 10-15 days |
|     |                          |               | Leaf | Cough                        | Powder | Oral| Twice times in a day | 5-10 ml | 2-4 weeks |
|     |                          |               | Leaf | Typhoid & Gastritis         | Juice   | Oral| Once in a day     | 10-20 ml | 7 days   |
| 6.  | Bella Aegle marmelos (L) Correa | Tree         | Fruit       | Gastritis                   | Powder  | Oral| Twice times in a day | 1 tsf | 1 month |
|     |                          |               |             |                              |          |     |                  |        |          |
| 7.  | Pyaj Allium cepa Linn. | Shrub        | Tuber       | Acute abdomen, gastritis    | Decoction, Powder | Oral| Twice times in a day | APR | 1-2 months |
| 8.  | Lasun Allium sativum Linn. | Herb | Fruit       | Constipation                | Powder  | Oral| Twice times in a day | 3 gm. | 1 week |
| 9.  | Saptaparna Alstonia scholaris (L.) R. Br. | Tree   | Bark       | Gastritis                   | Powder  | Oral| Twice times in a day | 1 tsf | 1 month |
|     |                          |               | Root        | Jaundice                    | Powder  | Oral| Twice times in a day | 1 tsf | 1 month |
| 10. | Ankuri fool Andrographis paniculata Wall. | Herb | Whole plant | Diabetes mellitus | Powder | Oral| Twice times in a day | 3 gm. | 2-3 months |
| 11. | Badhar Artocarpus lakoocha Roxb. | Shrub | Fruit & Seed | Urological disorders | Juice | Oral| Twice times in a day | 10-15 ml | 30 days |
| 12. | Kurilo Asperagus racemosus Linn. | Shrub | Root       | Ulcer                        | Paste   | Oral| Twice times in a day | 3 ml | 2 months |
| 13. | Neem Azadirachta indica A. Juss | Tree | Leaf | Diabetes mellitus, Gastritis, Urological disorders | Decoction | Oral | Twice times in a day | 10 ml | CST |
|     |                          |               | Leaf | Diabetes mellitus, Gastritis, Urological disorders | Powder | Oral | Twice times in a day | 3gm | CST |
|     |                          |               | Bark & Leaf | Asthma, Gastritis | Juice | Oral | Twice times in a day | 5-10 ml | CST |
|     |                          |               | Whole plant | Pain | Powder | L.A. | Twice times in a day | APR | CST |
| 14. | Punamava Boerhavia diffusa Linn. | Shrub | Whole plant | Burning micturition | Powder | Oral| Twice times in a day | 1-5 gm. | 2 weeks |
| 15. | Gandhe Kandha Caesalpinia bonducella Linn. | Shrub | Whole plant | Piles | Paste | L.A. | Once in a day | APR | 5 times |
| No. | Common Name                       | Scientific Name                               | Part Used | Mode of Use            | Dosage                              | Duration        |
|-----|-----------------------------------|-----------------------------------------------|-----------|------------------------|-------------------------------------|-----------------|
| 16  | Anka Calotropis gigantea L.        | Dryand. ex W.T. Aiton                        | Root      | Powder                 | 1 ml Twicetimes in a day             | 2 weeks         |
| 17  | Rajbhiksha                         | Currantia asiatica Linn.                     | Root      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 18  | Chetrodiya                         | Neem                                          | Leaf      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 19  | Patna                             | Cinnamomum zeylanicum L.                     | Leaf      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 20  | Yaragharmabha                       | Cinnamomum latifolium L.                    | Leaf      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 21  | Barun                              | Crataeva nurvala Bick. Hum                    | Leaf      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 22  | Dhumal shikargi                     | Cryptomeria japonica D. Don                  | Leaf      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 23  | Kalo mashi                         | Cinnamomum latifolium L.                    | Leaf      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 24  | Maun                               | Cinnamomum latifolium L.                    | Leaf      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 25  | Kalo bhalo                         | Curcuma domestica Linn.                      | Leaf      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 26  | Pattharam                          | Cordyceps sinensis (Berk.) Soc.              | Leaf      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 27  | Chakal                           | Curcuma domestica Linn.                      | Root      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 28  | Seto musli                         | Curcuma domestica Linn.                      | Root      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 29  | Patha                             | Curcuma domestica Linn.                      | Root      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 30  | Kalo haledo                         | Curcuma domestica Linn.                      | Root      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 31  | Haledo                             | Curcuma domestica Linn.                      | Root      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 32  | Aankhle jhaar                      | Curcuma domestica Linn.                      | Root      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 33  | Siundi                             | Euphorbia royleana Boiss                    | Leaf      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 34  | Dugdika                             | Euphorbia royleana Boiss                    | Leaf      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 35  | Barra                              | Ficus benghalensis Lim.                     | Leaf      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| 36  | Amla                               | Phoenix samba Sambai                       | Leaf      | Juice                  | Twice times in a day 1-5 gm         | 30 days         |
| No. | Name                  | Common Name                  | Part Used    | Disease                  | Preparation     | Route     | Amount     | Duration  |
|-----|-----------------------|------------------------------|--------------|--------------------------|-----------------|-----------|------------|-----------|
| 37  | Peepal                | Ficus religiosa Linn.        | Tree         | Bone disorders, jaundice | Decoction       | Oral      | 20 ml      | 1 month   |
| 38  | Kamini                | Hemidesmus indicus (L.) R. Br. | Root         | Skin disorders           | Juice           | Oral      | 1-2 times a day | 1 month  |
| 39  | Sariva                | Holarrhena antidysentrica Wall. | Bark         | Bone disorders, jaundice | Juice           | Oral      | 1-2 times a day | 20 ml    |
| 40  | Ghanti                | Hibiscus rosa-sinesis Linn.  | Flower       | Gonorrhea, Menorrhea & Diabetes | Juice         | Oral      | 2-3 times a day | 3 gm.   |
| 41  | Bankhiro              | Holarrhena antidysentrica Wall. | Bark         | Diarrhea                 | Juice           | Oral      | 2-3 times a day | 5-10 ml  |
| 42  | Mehandi               | Lawsonia inermis Linn.       | Leaf         | Hair loss                | Paste           | L.A.      | Once in a month | 6 times  |
| 43  | Mahuwa               | Magnolia indica Linn.         | Bark         | Pain                     | Paste           | L.A.      | Twice times a day | 1 month  |
| 44  | Aampa                 | Aerva                        | Leaf         | Acute Gastritis, Bone disorders | Juice       | Oral      | Twice times a day | 3 gm.   |
| 45  | Kudri                 | Monotropis ciliata Linn.     | Flower & seed | Bone disorders            | Juice           | Oral      | Twice times a day | 5-10 ml  |
| 46  | Ghirathu              | Monotropis ciliata Linn.     | Leaf         | Pain                     | Juice           | Oral      | Twice times a day | 3 gm.   |
| 47  | Kapikachhu           | Nucella abortus Linn.        | Bark         | Bone disorders, jaundice | Juice           | Oral      | Twice times a day | 20 ml   |
| 48  | Karwari               | Nyctanthes scorpius Linn.    | Flower       | Bone disorders            | Juice           | Oral      | Twice times a day | 20 ml   |
| 49  | Parjat                | Nyctanthes scorpius Linn.    | Bark         | Bone disorders            | Juice           | Oral      | Twice times a day | 20 ml   |
| 50  | Tauli                 | Ocinum sanctum Linn.         | Leaf         | Cancer & Neurological disorders | Powder   | Oral      | Twice times a day | 3.5 gm. |
| 51  | Chepadi               | Opuntia monacantha Haw.      | Leaf         | Common cold              | Juice           | Oral      | Twice times in a day | 1 cap   |
| 52  | Chanti Amilo          | Osalia coccinella Linn.      | Leaf         | Gastritis                | Juice           | Oral      | Twice times in a day | 1 cap   |
| 53  | Bhaj amala            | Phyllanthus urinaria Linn.   | Leaf         | Urological disorders      | Juice           | Oral      | Twice times in a day | 1 cap   |
| 54  | Pippla                | Piper longum Linn.           | Leaf         | Indigestion              | Juice           | Oral      | Twice times in a day | 1 cap   |
| 55  | Maricha               | Piper nigra Linn.            | Leaf         | Respiratory disorders     | Juice           | Oral      | Twice times in a day | 1 cap   |
| 56  | Radhialo              | Peganum gummifera Linn.      | Leaf         | Bone disorders            | Juice           | Oral      | Twice times in a day | 1 cap   |
| 57  | Amba                  | Podium gummifera Linn.       | Leaf         | Bone disorders            | Juice           | Oral      | Twice times in a day | 1 cap   |
| 58  | Brijtopar             | Piperlongumum Linn.          | Leaf         | Bone disorders            | Juice           | Oral      | Twice times in a day | 1 cap   |
| No. | Name                  | Scientific Name                          | Type     | Part Used       | Condition                        | Dosage                      |
|-----|-----------------------|------------------------------------------|----------|-----------------|----------------------------------|-----------------------------|
| 59  | Anara Punica granatum Linn. | Tree                                    | Fruit bark | Anthelminthic Powder + Juice Oral | Twice times in a day 3 gm. or 10ml 1 month |
| 60  | Sarpagandha Rauwolfia serpentina Benth. | Herb                                    | Root & Leaf | Acute abdomen, gastritis Powder Oral | 1-2 times in a day 3 gm. 1-2 weeks |
| 61  | Guras Rhododendron anthopogon D. Don. | Tree                                    | Flower    | Paralysis Juice Oral | Thrice in a day 5-10 ml 3 months |
| 62  | Arandha Ricinus communis Linn. | Shrub                                    | Leaf & Fruit oil | Pain Oil massage L.A. | Twice times in a day 3 gm. 1 month |
| 63  | Saal Shorea robusta Gaertn. f. | Tree                                    | Bark      | Piles Paste L.A. | Once in a day 1 ml 1-2 days     |
| 64  | Kantakari Solanum surattense Burm f. | Shrub                                    | Whole plant | Epilepsy, Diabetes mellitus, Cough Juice Oral | Twice times in a day 1 tsf 1 month |
| 65  | Kirat tikta Swertia chirayita H. Karst. | Herb                                    | Leaf      | Bone disorders Juice L.A. | Twice times in a day 5-10 ml 1-3 months |
| 66  | Jamun Syzygium cumini (L.) Skeels | Tree                                    | Bark & Fruit | Common cold Powder Oral | Twice times in a day 3 gm. 2 weeks |
| 67  | Kalo Niuro Tectaria coadnumanata | Herb                                    | Root      | Leucoderma Decoction Oral | 2-3 times in a day 20 ml 1-1.5 months |
| 68  | Asnaa Terminalia alata Heyne ex Roth | Tree                                    | Bark      | Acute abdomen, gastritis Powder Oral | 1-2 times in a day 2-5 gm. 1-2 weeks |
| 69  | Arjun Terminalia arjuna Wight & Am | Tree                                    | Bark      | High blood pressure Decoction Oral | Twice times in a day 250 ml 1-3 months |
| 70  | Barro Terminalia bellirica Roxb. | Tree                                    | Fruit     | Gastritis Powder Oral | Twice times in a day 3 gm. 1 month |
| 71  | Haritkai Terminalia chebula Retz. | Tree                                    | Fruit     | Cough Juice Oral | Thrice in a day 5-10 ml 10-15 days |
| 72  | Guduchi Tinospora cordifolia Miers. | Climber                                 | Stem      | Gastritis Juice Oral | Thrice in a day 5-10 ml 10-15 days |
| 73  | Harjor Trudelia cristata Lindl | Herb                                    | Root      | Dislocated bones & Joints, Wound healing Paste L.A. | Once in a day 3 ml 1-2 months |
|     |                       |                                         | Whole plant |                                                                 |

*Note: L.A. stands for Local Application.*
| S.N. | Indication                        | Latin Name                | Parts’ used | Type   | Use       | Time          | Dose       | Duration   |
|------|----------------------------------|---------------------------|-------------|--------|-----------|---------------|------------|------------|
| 1.   | Acute abdomen                    | Terminalia alata          | Bark        | Powder | Oral      | 1-2 times in a day | 2-5 gm     | 1-2 weeks  |
|      |                                  | Rauwolfia serpentina      | Root & Leaf | Powder | Oral      | 1-2 times in a day | 4 gm       | 1-2 weeks  |
|      |                                  | Magnifera indica          | Seed        | Powder | Oral      | 2 times in a day   | 4 gm       | 16 days    |
|      |                                  | Allium cepa               | Tuber       | Powder | Oral      | 2 times in a day   | APR        | 1-2 months |
| 2.   | Allergy                          | Eclipta prostrata         | Whole plant | Powder | Oral      | 2 times in a day   | 3-5 gm     | 1 month    |
| 3.   | Anorexia & Flatus                | Emblica officinalis       | Fruit       | Powder | Oral      | 2 times in a day   | 3 gm       | 1-2 month  |
| 4.   | Anthelmintic                     | Punica granatum           | Fruit bark  | Powder | Oral      | 2 times in a day   | 3 gm       | 1 month    |
|      |                                  | Urtica dioica             | Leaf        | Decoction | Oral   | 2 times in a day   | 5-10 ml    | 3 weeks    |
| 5.   | Aphrodisiac                      | Cordyceps sinensis       | Whole plant | Powder | Oral      | 2 times in a day   | 1 gm       | 1 month    |
|      |                                  | Calatropis gigantia       | Latex       | Juice  | Oral      | 2-3 times in a day | 2-3 drops  | 2 weeks    |

Indication, use, dose, route of administration and duration: THs of the communities reported that they used medicinal plants found in the districts as well as other medicinal plants collected from different parts of the country. THs claimed that they treated 52 health disorders or diseases traditionally parts of plants or whole plant in different health problems in different dose forms (powder, decoction, juice, paste, etc.) prescribed for appropriate dose in a day for a time of period through local or oral route shown in table no. 2.

Table no. 2: Indication, Use, dose, route of administration and duration
| No. | Condition            | Plant    | Part     | Form   | Frequency | Duration |
|-----|----------------------|----------|----------|--------|-----------|----------|
| 6   | Asthma               | Azadirachta indica | Bark & Leaf | Juice | Oral | 2 times in a day | 5-10 ml | CST |
|     |                      | Abrus precatorius   | Fruit | Powder | Oral | 3 times in a day | 5-10 gm | 2-4 weeks |
|     |                      | Zingiber officinale | Tuber | Juice | Oral | 2-3 times in a day | 15-20 ml | 10-15 days |
| 7   | Bone disorders       | Magnifera indica   | Bark | Juice | Oral | 2 times in a day | 5 ml | 1 month |
|     |                      | Terminalia chebula | Fruit | Paste | L.A. | 2 times in a day | 10 gm | 3 months |
|     |                      | Fagostemon amaranoides | Leaf | Paste | L.A. | 1 times in a day | 1-5 gm | 2-3 months |
|     |                      | Swertia chirayita | Leaf | Juice | L.A. | 2 times in a day | 5-10 ml | 1-3 months |
|     |                      | Woodfordia fructicosa | Leaf | Paste | L.A. | 1 times in a day | 10-15 leaf | 15 days |
|     |                      | Ficus religiosa      | Bark | Decoction | Oral | 1-2 times in a day | 21 ml | 2 month |
|     |                      | Nyctanthes abor-trists | Flower & Leaf | Decoction | Oral | 1-2 times in a day | 21 ml | 2 month |
|     |                      | Ficus religiosa      | Fruit | Decoction | Oral | 1-2 times in a day | 21 ml | 2 month |
| 8   | Burning micturition  | Ocimum sanctum      | Stem & Leaf | Decoction | Oral | 2 times in a day | 3-5 ml | 2 weeks |
|     |                      | Boerhavia diffusa   | Whole plant | Powder | Oral | 2 times in a day | 1-5 gm | 2 weeks |
|     |                      | Lawsonia inermis    | Whole plant | Juice | Oral | 1 times in a day | 1 cup | 7 days |
|     |                      | Cucumis sativus     | Seed | Juice | Oral | 2 times in a day | 2 tsf | 15-20 days |
| 9   | Cancer               | Nyctanthes abor-trists | Leaf | Paste | L.A. | 1-2 times in a day | APR | CST |
| 10  | Cardiac disorders    | Terminalia arjuna  | Bark | Juice | Oral | 2-3 times in a day | 5 ml | 1-3 months |
| 11  |                      | Momordica charantia | Fruit | Decoction | Oral | 2-3 times in a day | 5 ml | 1-1.5 months |
| 12  | Cholera              | Woodfordia fructicosa | Flower | Powder | Oral | 2 times in a day | 1 gm | 10-12 days |
|     |                      | Euphorbia thymofolia | Whole plant | Juice | Oral | 1-2 times in a day | 3-5 ml | 2 week |
| 13  | Common cold          | Syzygium cumini     | Bark & Fruit | Powder | Oral | 2 times in a day | 3 gm | 2 weeks |
|     |                      | Curcuma caesia      | Rhizome | Powder | Oral | 2 times in a day | 3 gm | 2 weeks |
|     |                      | Opuntia monacantha  | Root | Powder | Oral | 2 times in a day | 1 gm | 2 weeks |
|     |                      | Acorus calamus      | Tuber | Powder | Oral | 2 times in a day | 1 gm | 15-20 days |
| 14  | Constipation         | Allium sativum      | Fruit | Powder | Oral | 2 times in a day | 3 gm | 1 week |
| 15. | Cough | Terminalia chebula | Fruit | Juice | Oral | 2 times in a day | 3-5 ml | 2 weeks |
| | | Zanthoxylum armatum | Fruit | Powder | Oral | 2 times in a day | 1 gm | 2 weeks |
| | | Adhatoda vasica | Leaf | Powder | Oral | 2.3 times in a day | 5-10 gm | 2-4 weeks |
| | | Pogostemon amaroides | Leaf | Juice | Oral | 2 times in a day | 5 ml | 10-15 days |
| | | Curcuma caesia | Rhizome | Powder | Oral | 2 times in a day | 4 gm | 3 weeks |
| | | Opuntia monacantha | Root | Powder | Oral | 2 times in a day | 6 gm | 3 weeks |
| | | Cynodon dactylon | Whole plant | Juice | Oral | 2 times in a day | 1 tsf | 15 days |
| | | Solanum surattense | Whole plant | Juice | Oral | 2 times in a day | 30 ml | 3 month |
| | | Tinospora cordifolia | Whole plant | Juice | Oral | 3 times in a day | 5-10 ml | 10-15 days |
| | | Trudelia cristata | Whole plant | Juice | Oral | 2 times in a day | 3 ml | 2 weeks |
| | | Centella asiatica | Whole plant | Powder | Oral | 2 times in a day | 3 gm | 1/2-3 months, |
| | | | | | | | | |
| 16. | Dementia & memory tonic | Bark | Juice | Oral | 2 times in a day | 202 ml | 1-2 weeks |
| | Diabetes mellitus | Hibiscus rosa-sinensis | Flower | Juice | Oral | 2 times in a day | 5-10 ml | 1-2 weeks |
| | | Zingiber officinale | Fruit | Decoction | Oral | 2 times in a day | 200 ml | 10-15 days |
| | | Azadirachta indica | Leaf | Decoction | Oral | 2 times in a day | 3 gm | 2-3 months |
| | | Syzygium cumini | Leaf | Powder | Oral | 2 times in a day | 3 gm | 2-3 months |
| | | Andrographis paniculata | Whole plant | Powder | Oral | 2 times in a day | 2 tsf | 2 month |
| | | Solanum surattense | Whole plant | Juice | Oral | 2 times in a day | 2 tsf | 2 month |
| | | Senecio jacobaea | Whole plant | Powder | Oral | 2 times in a day | 3 gm | 2-3 months |
| | | | | | | | | |
| 17. | Diarrhea | Holarrhena antidysenterica | Bark | Juice | Oral | 2-3 times in a day | 5-10 ml | 15 days |
| | | Euphorbia thymifolia | Whole plant | Juice | Oral | 1-2 times in a day | 3-5 ml | 1 week |
| | | Psidium guajava | Whole plant | Powder | Oral | 2 times in a day | 6 gm | 2 weeks |
| | | Urtica dioica | Leaf | Powder | Oral | 2 times in a day | 3 gm | 2 weeks |
| | | | | | | | | |
| 18. | Dislocated bones & Joints | Euphorbia thymifolia | Whole plant | Juice | Oral | 2 times in a day | 3-5 ml | 1 week |
| | | Trudelia cristata | Root | Paste | L.A. | 1 times in a day | 3 gm | 1-2 months |
| | | Psidium guajava | Whole plant | Powder | Oral | 2 times in a day | 3 gm | 3 weeks |
| | | Equisetum arvense | Whole plant | Paste | L.A. | 1 times in a day | APR | CST |
| | | Solanum surattense | Whole plant | Juice | Oral | 2 times in a day | 1 tsf | 1 month |
| | | Tapinella capensis | Fruit | Oil | L.A. | 2 times in a day | 2-3 drops | 2 weeks |
| | | Zingiber officinale | Fruit | Decoction | Oral | 2 times in a day | 200 ml | 10-15 days |
| | | Morinda domestica | Fruit | Decoction | Oral | 2-3 times in a day | 5 ml | 1-1 5 months |
| | | Terminalia bellirica | Fruit | Juice | Oral | 2 times in a day | 10-15 ml | 10-15 days |
| | | Calatropis gigantea | Leaf | Juice | Oral | 2-3 times in a day | APR | 3 weeks |
| | | Equisetum arvense | Root | Paste | L.A. | 1 times in a day | APR | 2-3 months |
| | | Terminalia bellirica | Fruit | Powder | Oral | 2 times in a day | 25 gm | 10-15 days |
| No. | Condition       | Plant Name                  | Part Used | Form | Mode of Administration | Frequency | Dosage |
|-----|-----------------|-----------------------------|-----------|------|-------------------------|-----------|--------|
| 27. | Gastritis       | Alstonia scholaris          | Bark      | Powder | Oral                    | 2 times a day | 1 gm   | 1 month |
|     |                 | Pterocarpus marsupium       | Bark      | Powder | Oral                    | 2 times a day | 1 gm   | 15-20 days |
|     |                 | Terminalia alata            | Bark      | Powder | Oral                    | 1-2 times a day | 2-5 gm | 1-2 weeks |
|     | Azadirachta indica | Bark & Leaf                | Leaf      | Juice  | Oral                    | 2 times a day | 5-10 ml | CST      |
|     | Aegle marmelos  | Fruit                       | Powder    | Oral   | 2 times a day           |           | 1 gm   | 1 month  |
|     | Emblica officinalis | Fruit                     | Powder    | Oral   | 2 times a day           |           | 4 gm   | 1-2 month |
|     | Terminalia bellirica | Fruit                   | Powder    | Oral   | 2 times a day           |           | 3 gm   | 1 month  |
|     | Terminalia chebula | Fruit                     | Powder    | Oral   | 2 times a day           |           | 3 gm   | 2 weeks  |
|     | Achatoda vasica | Leaf                        | Juice     | Oral   | 1 times a day           |           | 10-20 ml | 8 days   |
|     | Azadirachta indica | Leaf                     | Powder    | Oral   | 2 times a day           |           | 3 gm   | CST      |
|     | Cassia fistula  | Root                        | Powder    | Oral   | 2 times a day           |           | 1-5 gm | 2 weeks  |
|     | Acacia arabica  | Root & Bark                 | Powder    | Oral   | 2 times a day           |           | 10-15 ml | 30 days  |
|     | Rauwolfia serpentina | Tuber                    | Powder    | Oral   | 1-2 times a day         |           | 3 gm   | 1-2 weeks |
|     | Pogostemon amarantoides | Stem                   | Juice     | Oral   | 2 times a day           |           | 5 ml   | 10-15 days |
|     | Tinospora cordifolia | Stem Climber            | Juice     | Oral   | 3 times a day           |           | 5-10 ml | 10-15 days |
|     | Allium cepa     | Tuber                       | Powder    | Oral   | 2 times a day           |           | 2 gm   | APR      |
|     | Curcuma domestica | Tuber                     | Powder    | Oral   | 2 times a day           |           | 2-4 weeks | 2-4 weeks |
|     | Gissampolos paniera | Whole plant             | Juice     | Oral   | 2 times a day           |           | 10-15 ml | 30 days  |
|     | Equisetum diffusum | Whole plant              | Powder    | Oral   | 1 times a day           |           | 1 gm   | 1 month  |
|     | Oxalis cornicula | Whole plant                | Powder    | Oral   | 2 times a day           |           | 1 gm   | 15-20 days |
|     | Achatoda vasica | Whole plant                | Powder    | Oral   | 2 times a day           |           | 1 gm   | 15-10 days |
| 28. | GI disorders    | Urtica dioca               | Leaf      | Powder | Oral                    | 2 times a day | 4 gm   | 3 weeks  |
|     | Aegle marmelos  | Fruit                       | Juice     | Oral   | 2 times a day           |           | 10-20 ml | 1 month  |
|     | Asparagus racemosus | Root                | Paste     | Oral   | 2 times a day           |           | 3 gm   | 2 months |
| 29. | Gonorrhea       | Hibiscus rosa-sinensis     | Flower    | Juice  | Oral                    | 2 times a day | 200 ml | 1-2 weeks |
|     | Curcugilo orchidoides | Tuber             | Juice     | Oral   | 2 times a day           |           | 3 ml   | 2-3 months |
| 30. | Gout            | Lawsonia inermis           | Leaf      | Paste  | L.A.                    | 1 times a day | APR   | 6 times  |
| 31. | Hair loss       | Cucumid sativus            | Seed      | Juice  | Oral                    | 2 times a day | 1 tsf  | 15-20 days |
| 32. | Headache        | Terminalia arjuna          | Bark      | Decoction | Oral             | 2 times a day | 250 ml | 1-3 months |
|     | Ficus bengalensis | Leaf                     | Decoction | Oral   | 2 times a day           |           | 10-15 ml | 10-15 days |
| 33. | High blood pressure | Terminalia arjuna        | Bark      | Decoction | Oral             | 3 times a day | 5-10 ml | 10-15 days |
| 34. | Immune modulator | Tinospora cordifolia       | Whole plant | Juice  | Oral                    | 2 times a day | 3 gm   | 10-15 days |
| 35. | Indigestion     | Piper longum               | Fruit     | Powder | Oral                    | 2 times a day | 3 gm   | 10-15 days |
| No. | Name | Part Used | Condition | Dosage |
|-----|------|-----------|-----------|--------|
| 36. | Ficus religiosa | Leaf | Jaundice | 20 ml |
| 37. | Cuscuta reflexa | Root | Leucoderma | 1 month |
| 38. | Nyctanthes arbor-tristis | Flower & Leaf | Mental disorder | 1 month |
| 39. | Alstonia scholaris | Root | Neurological disorders | 1 month |
| 40. | Tectaria caudata | Root | Paralysis & Stiffness of joints | 1 month |
| 41. | Azadirachta indica | Leaf & Fruit oil | Obesity | 1 month |
| 42. | Asparagus racemosus | Fruit | Pain | 1 month |
| 43. | Piper nigropilosus | Root | Piles | 1 month |
| 44. | Arctium lappa | Root | Respiratory disorders | 1 month |
| 45. | Heliotropium indicum | Flower | Rasayan | 1 month |
| 46. | Piper longum | Fruit | Scatica | 1 month |
| 47. | Terminalia belerica | Leaf | Scatica | 1 month |
| No. | Condition               | Plant        | Part     | Form        | Frequency       | Dose       | Duration          |
|-----|------------------------|--------------|----------|-------------|-----------------|------------|-------------------|
| 48  | Skin disorders         | Terminalia chebula | Fruit   | Paste       | L.A. 2 times in a day | 10 gm | 2 months          |
|     |                        | Zingiber officinale | Fruit   | Paste       | L.A. 2 times in a day | 3 gm | 10-15 days        |
|     |                        | Arbus precatorius | Leaf    | Powder      | L.A. 2 times in a day | APR | 1 month           |
|     |                        | Hemidesmus indicus | Root    | Paste       | L.A. 2-3 times in a day | APR | 1 month           |
|     |                        | Momordica cylindrica | Seed & fruit | Paste | L.A. 2 times in a day | 20 gm | 12-13 days        |
|     |                        | Centella asiatica | Whole plant | Powder | Oral 2 times in a day | 6 gm | 1/2-3 months, APR |
| 49  | Snake bite             | Euphorbia royleana | Latex   | Powder      | L.A. 1-2 times in a day | 1 gm | Stat              |
| 50  | Typhoid                | Nerium indicum | Bark    | Juice       | Oral 2 times in a day | 5-10 ml | 2-3 months        |
|     |                        | Adhatoda vasica | Leaf    | Juice       | Oral 1 times in a day | 10-20 ml | 7 days            |
| 51  | Urological disorders   | Terminalia chebula | Fruit   | Juice       | Oral 2 times in a day | 6 ml | 2 months          |
|     |                        | Artocarpus lakoocha | Fruit & Seed | Juice | Oral 2 times in a day | 10-15 ml | 30 days           |
|     |                        | Azadirachta indica | Leaf    | Powder      | Oral 2 times in a day | 3 gm | CST               |
|     |                        | Calatropis gigantia | Leaf    | Juice       | Oral 2-3 times in a day | APR | 2 weeks           |
|     |                        | Cissampelos pariera | Leaf    | Juice       | Oral 2 times in a day | 10-15 ml | 30 days           |
|     |                        | Cryptomeria japonica | Leaf    | Paste       | L.A. 2-3 times in a day | 3 gm | 1 week            |
|     |                        | Phyllanthus urinaria | Whole plant | Juice | Oral 3 times in a day | 5-10 ml | 10-15 days        |
| 52  | Wound healing          | Momordica charantia | Fruit   | Decoction   | Oral 2-3 times in a day | 5-5 ml | 1-1.5 months      |
|     |                        | Ficus bengalenis | Latex   | Paste       | L.A. 2 times in a day | 2-3 gm | 10-15 days        |
|     |                        | Trudelia cristata | Root    | Paste       | L.A. 1 times in a day | 4 gm | 1-2 months        |
| Abbreviation | Definition                                      |
|--------------|------------------------------------------------|
| AMRO         | WHO Regional Office for the Americas            |
| APR          | As Per Requirement                             |
| BC           | Before Christ                                  |
| CITES        | Convention on International Trade in Endangered Species |
| DHO          | District Health Office                         |
| ENT          | Ear, Nose & Throat                             |
| FIC          | Informant Consensus Factor                     |
| FL           | Fidelity Level                                 |
| IK           | Indigenous Knowledge                           |
| L.A.         | Local Application                              |
| LK           | Local Knowledge                                |
| MAPs         | Medicinal and Aromatic Plants                  |
| MSFP         | Multi Stakeholder Forestry Program             |
| n            | Number of respondents                          |
| NTFPs        | Non-Timber Forest Products                    |
| PAHO         | Pan American Health Organization               |
| THs          | Traditional healers                            |
| TK           | Traditional knowledge                          |
| TM           | Traditional Medicine                           |
| VDC          | Village Development Committee                  |
| WHO          | World Health Organization                      |