



## ORIGINAL ARTICLE

### *An Assessment of Local Use Pattern and Traditional Knowledge on Medicinal and Aromatic Plants in Kapilvastu District Nepal*

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#### 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

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## BACKGROUND

Human beings have been depended on plants from time immemorial.<sup>1</sup> 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.<sup>2-5</sup>

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.<sup>6</sup> 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.<sup>7</sup>

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”.<sup>8</sup>

In the developing countries, 70–80% of the population relies on medicinal plants for primary health care.<sup>9</sup> Globally, millions of people in the developing countries rely on medicinal plants for primary health care, income generation and livelihood improvement.<sup>10</sup> The use of plants as medicine is slowly increasing in the developed world<sup>11</sup> because they have minor or no side effects.<sup>12</sup> According to WHO, about 80% of the world’s population, especially in the rural areas depends on herbal medicine for their healthcare needs.<sup>13</sup> 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 health care needs.<sup>14</sup> In Nepal, there are more THs than Allopathic practitioners (APs). APs are often concentrated in urban areas reducing medical care to rural access.<sup>15</sup>

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.<sup>16-20</sup>

In Africa up to 80% of the population uses traditional medicine (TM) to meet their health care needs.<sup>15</sup> 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.<sup>15</sup> 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.<sup>21</sup>

Nepal is a natural storehouse of medicinal plants.<sup>22-24</sup> 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<sup>5</sup>, and about 6,500 species of which occur in Asia.<sup>2</sup> Nepal is ranked as 9<sup>th</sup> among the Asian countries for its floral wealth with an estimated 9,000 species of flowering plants.<sup>25</sup> So far, 6,653 species of flowering plants have been reported.<sup>26</sup> Among these, about 50% fall under the rubrics

“useful”<sup>27</sup> and “ethnobotanical”<sup>28</sup>, and about 25%–50% are ethnomedicinals.<sup>29,30</sup> Catalogues have recorded 1,792 to 2,331 useful medicinal and aromatic plants in Nepal<sup>4,28</sup>, reporting their importance in alleviating human health from suffering because they have long been used for home remedies, and traditional therapies.<sup>4,15,29,31</sup> In Nepal, at least 1,600 to 1,900 species of plants are commonly used in traditional medicinal practices.<sup>3,4</sup> In Nepalese traditional medicine, more than 2300 plant species<sup>32</sup> are used by 125 caste or ethnic communities speaking approximately 123 different languages.<sup>33</sup> It has been estimated that between 246–310 species of flowering plants are endemics to Nepal and the great majority of these 78 species are located in Mustang.<sup>34,35</sup> Many of these plants have been used by local indigenous people for centuries, with medicinal uses playing an important role in both health and culture.

Traditional healers in Nepal can be divided into-(a) Dharmi-Jhankri (b) Pandit-Lama-Gubhaju-Pujari and (c) Jyotishi.<sup>36</sup> Dharmi-Jhankri are shamans, Pandit-Lama-Gubhaju-Pujari are the priests of the different ethnic and religious groups in Nepal while Jyotishi are astrologers. Dharmi-Jhankris act as mediators between the spiritual world and the material world of day to day life.<sup>37</sup> Attacks by different types of evil spirits are believed to be common causes of illness in rural areas of Nepal. A previous study reported that approximately 4, 00,000 to 8, 00,000 number of THs were practicing in Nepal.<sup>38</sup>

Traditional healers (THs) typically treat patients using various traditional techniques. Although such techniques are often criticized for being unscientific, recent studies have proved the effectiveness of traditional herbal medicines<sup>39</sup>, and chanting for relieving pain and other health problems by its hypnotic effects.<sup>40</sup> These treatments are carried out using a variety of traditional tools.<sup>41</sup>

Plants and plant products are the primary source of medicine and a highly valued resource in Nepal. About 90% of the Nepalese people reside in rural areas where access to government health care facilities is lacking, depends upon local herbal remedies.<sup>10</sup> Medicinal plants play vital roles in the Nepalese livelihood<sup>22</sup> and the use of medicinal plants is frequent in several regions of Nepal.<sup>23,24,42</sup> It is estimated that only 15-20% of the population of Nepal living in and around urban areas, has access to modern medicinal facilities; equally prefer traditional medicines.<sup>22</sup> The ethnic people

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 ethno medicinal and ethno pharmacological knowledge about the plants available in their surroundings<sup>10,23,27,30,43</sup>, which has been serving rural people with its superiority.

These plants are also important for local livelihoods<sup>44</sup> and income generation<sup>45</sup>, and they do fetch higher market prices.<sup>46</sup> The global demand for medicinal plants is increasing and, in India alone, the market is expanding at an annual 20 percent.<sup>47,48</sup> Thousands of tons of raw material are exported every year, mostly to India, but also to Asia, Europe and America.<sup>49</sup>

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.<sup>33</sup> The practice of seeking evidence helps in identifying important medicinal plants and may also lead to the development of new or important pharmaceutical drugs<sup>29</sup> with future bio-prospecting potential.<sup>23,50</sup> Numerous drugs have been introduced to international markets<sup>51</sup> through validation of traditional medicines<sup>52</sup>, indigenous therapies<sup>53,54</sup> and ethno pharmacological practices.<sup>55</sup>

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.<sup>5</sup> More recently, however, knowledge transfer has also occurred through formally recognized school level education.<sup>2-4</sup>

National and regional demands for herbal medicine are accelerating<sup>45,46</sup>, and globalization of herbal medicine, along with uncontrolled exploitative practices and lack of concerted conservation efforts, now threaten the country's medicinal plants.<sup>56,57</sup> Sustainable utilization and management of medicinal plants based on traditional knowledge is therefore necessary.

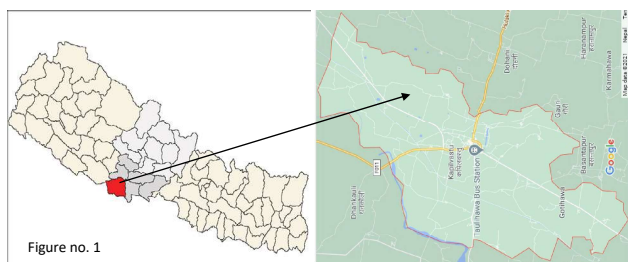
Due to changing life style, extreme secrecy of traditional healers and negligence of youngsters, the practice and dependence of ethnic societies in folk medicines is in rapid decline globally, therefore, ethno botanical exploitation and documentation of indigenous knowledge about the usefulness of such a vast pool of genetic resources is deliberately needed.<sup>52,58-59</sup>

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 Siddhodana 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 district, Purvanchal region, Uttar Pradesh to the south figure 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

A 2011 census reported that 50% of people in the district were Awadhi speakers followed by Urdu (18%), Tharu (11%) and native Nepali speakers (17%). The number of immigrants from the neighboring hilly region is increasing every year.

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.<sup>60</sup> **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 Dharni (Shaman, 12%).

### Medicinal Plants and Their usages

In this study, there were 79 medicinal plants 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.

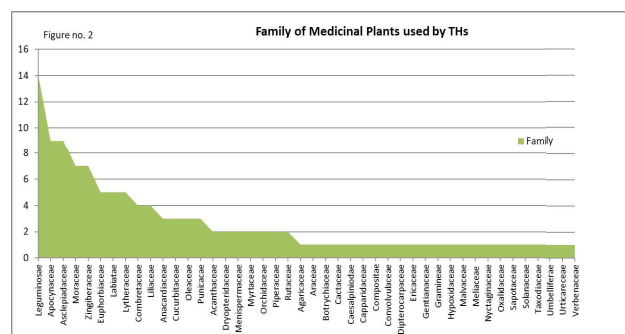


Figure No. 2: Family of Medicinal Plants

The other common families were Apocyanaceae, 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.

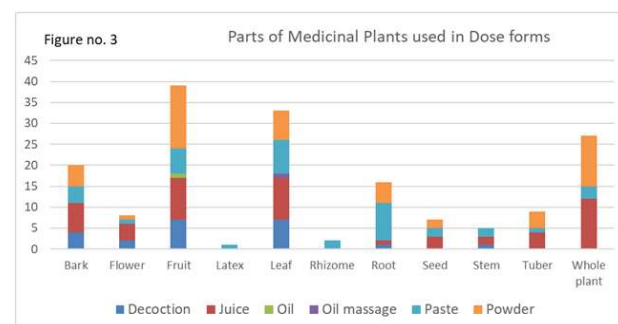
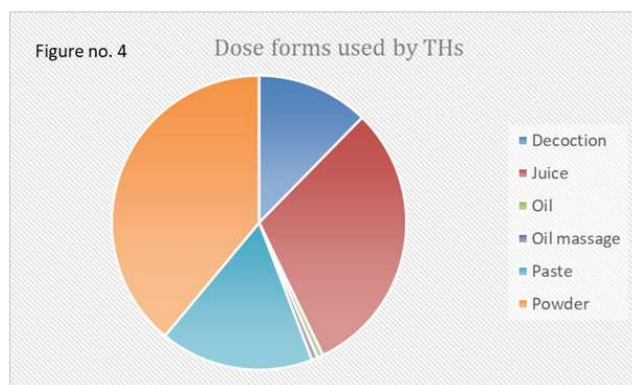


Figure No. 3: Parts of Plant used in preparation of dose forms

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.

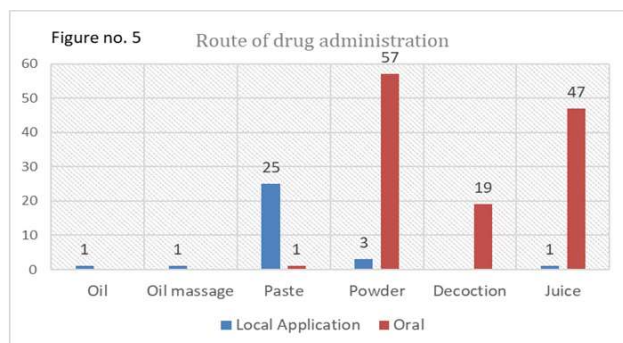
**Herbal Drug Form:** In this study (n=25), majority of traditional practitioners used powder (39%) followed by juice (30%) for their clients. Paste and decoction were also used in remarkable level. Massage oil and other oil were least used in traditional healing practices in figure no.4.



**Figure No. 4 : Herbal Drug Form**

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.



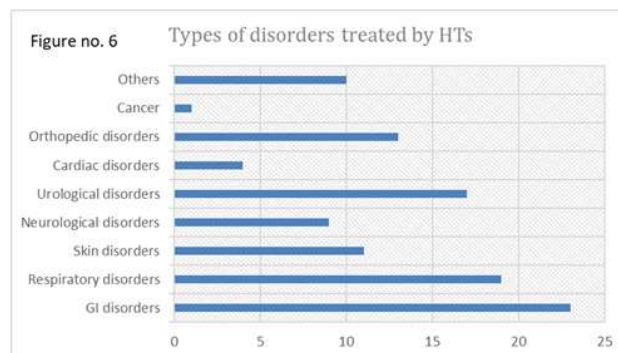
**Figure No. 5: Rout of Drug Administration**

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.



**Figure no. 6: Prevalence of disorders treated by HTs 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. It is different from the studies conducted in California<sup>61</sup>, Israel<sup>62</sup> and Colombia University<sup>63</sup> where clients, those with high-income level had used traditional medicine. The study conducted in the United States<sup>64</sup> to investigate possible predictors of alternative health care use indicated that those with higher education and poorer health status were associated with alternative medicine use. The healers in the current study followed traditional treatment systems. Healers in Tanzania<sup>65</sup> agree in diagnosis of patients with this study though they also use laboratory test results made in the hospital in addition to history taking, physical diagnosis, and divination to identify diseases.

**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.<sup>66</sup> In several studies showed that the majority of patients visiting traditional healers were from rural area<sup>5</sup> 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 Ababa which was also found plants, animals and minerals as a source of medicine.<sup>67</sup>

**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 easily prepared in the resource limited condition. In this study, powder was the most frequently used drug in traditional healing practices.

**Route of Drug Administration:** Local application and oral was mainly two routes 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 be easily available 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.<sup>43</sup>

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.<sup>30</sup>

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.<sup>68</sup>

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<sup>69</sup> 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.<sup>70</sup>

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.<sup>71</sup>

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.<sup>72</sup>

### **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<sup>73</sup>, 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.<sup>74</sup>

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/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.<sup>75</sup> 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.<sup>76</sup>

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

for curing different.<sup>34</sup> Another study conducted in Shey-Poksundo 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<sup>77</sup>, 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<sup>78</sup>, 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<sup>79</sup>. In Sindhupalchok 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<sup>80</sup>. 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, anthelmintic, sinusitis, bone fracture, ear infection<sup>81</sup>, 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.

## Photo



*Tinospora cordifolia* Wild.



*Terminalia chebula* Linn.



*Alstonia scholaris*



Strain treated with leaves of *Ricinus communis*

**CONFLICT OF INTEREST:** Author declares that there is no conflict of interest.

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Uses of Medicinal Plants by Traditional healers in communities of the district: 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. It was also identified with latin name of the plants. THs used 79 species (parts of plants or whole plant) in different health problems 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 shown in table no. 1.

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

S.N	N.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
3.	Sikaakai	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
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	2-3 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.	Bela	Aegle marmelos (L) Correa	Tree	Fruit	Gastritis	Powder	Oral	Twice times in a day	1 tsf	1 month
					Ulcer	Juice	Oral	Twice times in a day	10-20 ml	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	Paste	L.A.	Twice times in a day	APR	CST
14.	Punarnava	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	Root (Ash)	Piles	Paste	L.A.	Once in a day	APR	5 times

16.	Anka	Calotropis gigantea (L.) Dryand. ex W.T. Aiton	Shrub	Root	Piles	Powder	L.A.	Twice times in a day	1 ml	2 weeks
				Leaf	Fever, Urological disorders	Juice	Oral	2-3 times in a day	APR	2 weeks
				Latex	Aphrodisiac	Juice	Oral	2-3 times in a day	2-3 drops	2 weeks
17.	Rajbriksha	Cassia fistula Linn.	Tree	Root	Gastritis	Powder	Oral	Twice times in a day	1-5 gm.	2 weeks
18.	Ghodtapre	Centella asiatica Linn.	Herb	Whole plant	Mental disorder, Skin disorders, Dementia & memory tonic	Powder	Oral	Twice times in a day	1 tsf/3 gm.	1/2-3 months, APR
19.	Seto musali	Chlorophytum borivilianum L.	Herb	Tuber	Leucoderma	Paste	L.A.	1-2 times in a day	2-3 ml	APR
20.	Patha	Cissampelos pariera Linn.	Climber	WP	Gastritis	Juice	Oral	Twice times in a day	10-15 ml	30 days
				Leaf	Urological disorders	Juice	Oral	Twice times in a day	10-15 ml	30 days
21.	Yarsagumba	Cordyceps sinensis (Berk.) Sacc	Herb	Whole plant	Aphrodisiac	Powder	Oral	Twice times in a day	1 gm.	1 month
22.	Barun	Crataeva nurvala Buch. Hum	Tree	Bark	Respiratory disorders	Decoction	Oral	1-2 times in a day	10 ml	3 weeks
23.	Dhupi salla	Cryptomeria japonica D. Don	Shrub	Leaf	Urological disorders	Paste	L.A.	2-3 times in a day	3 gm.	1 week
24.	Kakro beej	Cucumis sativus Linn.	Climber	Seed	Burning sensation, Headache	Juice	Oral	Twice times in a day	1 tsf	15-20 days
25.	Kalo musli	Curculigo orchioides Gaertn.	Herb	Tuber	Gout	Juice	Oral	Twice times in a day	3 gm.	2-3 months
					Neurological disorders	Juice	Oral	Twice times in a day	5-10 ml	2-3 months
26.	Kalo haledo	Curcuma caesia Roxb.	Herb	Rhizome	Cough, Common cold	Powder	Oral	Twice times in a day	3 gm.	2 weeks
				Fruit	Neurological disorders	Juice	Oral	Twice times in a day	3 gm.	3 months
27.	Haledo	Curcuma domestica Linn.	Tree	Tuber	Gastritis	Powder	Oral	Twice times in a day	2 gm.	2-4 weeks
28.	Akashelaha	Cuscuta reflexa Roxb.	Climber	Stem	Jaundice	Powder	Oral	Twice times in a day	3 gm.	1 month
29.	Dubo	Cynodon dactylon Pers.	Herb	Whole plant	Cough	Juice	Oral	Twice times in a day	1 tsf	15 days
30.	Harjor	Dendrobium teres Roxb.	Herb	Whole plant	Fracture	Paste	L.A.	Once in a day	3 ml	1-2 months
31.	Bhringaraaj	Eclipta prostate Linn.	Tree	Whole plant	Allergy	Powder	Oral	Twice times in a day	3-5 gm.	1 month
32.	Amla	Embellica officinalis Gaertn	Tree	Fruit	Gastritis, Anorexia & Flatus	Powder	Oral	Twice times in a day	3 gm.	1-2 month
					Rasayan	Powder	Oral	Twice times in a day	3 gm.	Regular
33.	Aankhle jhaar	Equisetum diffusum D. Don.	Herb	Whole plant	Gastritis	Powder	Oral	Once in a day	1 tsf	1 month
				Root	Fracture & dislocation	Paste	L.A.	Once in a day	APR	2-3 months
				Whole plant	Eczema	Paste	L.A.	Once in a day	APR	CST
34.	Siundi	Euphorbia royleana Boiss	Shrub	Latex	Snake bite	Powder	L.A.	1-2 times in a day	1 ml	Stat
35.	Dugdika	Euphorbia thymifolia Linn.	Herb	Whole plant	Cholera, Diarrhea	Juice	Oral	1-2 times in a day	3-5 gm.	1 week
36.	Barra	Ficus bengalensis Linn.	Tree	Leaf	Blood pressure, Respiratory disorders	Decoction	Oral	Twice times in a day	10-15 gm.	10-15 days
				Latex	Wound healing.	Paste	L.A.	Twice times in a day	2-3 ml	10-15 days

37.	Peepal	Ficus religiosa Linn.	Tree	Bark	Bone disorders, jaundice	Decoction	Oral	1-2 times in a day	20 ml	1 month
38.	Kaamraj	Helminthostachys zeylanica L.	Herb	Fruit	Bone disorders, jaundice	Decoction	Oral	1-2 times in a day	20 ml	1 month
39.	Sariva	Hemidesmus indicus (L.) R. Br.	Climber	Root	Sciatica	Juice	Oral	Twice times in a day	5-10 ml	3 months
40.	Ghanti fool	Hibiscus rosa-sinensis Linn.	Shrub	Root	Skin disorders	Paste	L.A.	2-3 times in a day	APR	1 month
41.	Bankhiro	Holarrhena antidysentrica Wall.	tree	Flower	Gonorrhea, Menorrhea & Diabetes mellitus	Juice	Oral	Twice times in a day	200 ml	1-2 weeks
42.	Mehandi	Lawsonia inermis Linn.	Herb	Bark	Diarrhea	Juice	Oral	2-3 times in a day	5-10 ml	15 days
43.	Mahuwa	Madhuca indica Linn.	Tree	Leaf	Hair loss	Paste	L.A.	Once in a month	APR	6 times
44.	Aampa	Magnifera indica Linn.	Tree	Whole plant	Burning micturition	Juice	Oral	Once in a day	1 cup	7 days
45.	Karela	Momordica charantia Linn.	Climber	Flower	Pain	Paste	L.A.	Twice times in a day	APR	CST
46.	Ghiraula	Momordica cylindrical Linn.	Climber	Seed & fruit	Acute Gastritis, Bone disorders	Powder	Oral	Twice times in a day	3 gm.	15 days
47.	Kapikachhu	Mucuna prurita Linn.	Herb	Bark	Bone disorders	Juice	Oral	Twice times in a day	5 ml	1 month
48.	Karaveer	Nerium indicum Mill.	Shrub	Bark	Bone disorders	Paste	L.A.	Twice times in a day	APR	1 month
49.	Parijat	Nyctanthes abor-tristis Linn.	Tree	Fruit	wound healing, Cardiac disorders & Fever	Decoction	Oral	2-3 times in a day	3 gm.	1-1.5 months
50.	Tusli	Ocimum sanctum Linn.	Herb	Seed & fruit	Skin disorders	Paste	L.A.	Twice times in a day	200 ml	12-13 days
51.	Chepte siundi	Opuntia monacantha Haw.	Herb	Fruit	Neurological disorders	Juice	Oral	2-3 times in a day	3-5 gm.	CST
52.	Chari Amilo	Oxalis corniculata Linn.	Herb	Bark	Typhoid	Juice	Oral	Twice times in a day	5-10 ml	2-3 months
53.	Bhui amala	Phyllanthus urinaria Linn.	Herb	Flower & Leaf	Bone disorders, jaundice	Decoction	Oral	1-2 times in a day	20 ml	1 month
54.	Pippala	Piper longum Linn.	Climber	Leaf	Cancer & Neurological disorders	Paste	L.A.	1-2 times in a day	APR	CST
55.	Maricha	Piper nigrum Linn.	Shrub	Stem & Leaf	Burning micturition	Decoction + Powder	Oral	Twice times in a day	3-5 gm.	2 weeks
56.	Rudhilo	Pogostemon amarantoides Benth	Shrub	Root	Cough, Common cold	Powder	Oral	Twice times in a day	1 tsf	2 weeks
57.	Amba	Psidium guajava Linn.	Tree	Whole plant	Gastritis	Powder	Oral	Twice times in a day	1 tsf	15-20 days
58.	Bijayasar	Pterocarpus marsupium Roxb.	Tree	Bark	Gastritis	Powder	Oral	Twice times in a day	1 tsf	15-20 days

59.	Anara	Punica granatum Linn.	Tree	Fruit bark	Anthelmintic		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.	2-3 times in a day	1 ml	1 month
63.	Soal	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.	Jamuno	Syzygium cumini (L.) Skeels	Tree	Bark & Fruit	Common cold		Powder	Oral	Twice times in a day	3 gm.	2 weeks
67.	Kalo Niuro	Tectaria coadunata	Herb	Root	Diabetes mellitus		Powder	Oral	Twice times in a day	3 gm.	2-3 months
68.	Asnaa	Terminalia alata Heyne ex Roth	Tree	Bark	Leucoderma		Decoction	Oral	2-3 times in a day	20 ml	1-1.5 months
69.	Arjun	Terminalia arjuna Wight & Arn	Tree	Bark	Acute abdomen, gastritis		Powder	Oral	1-2 times in a day	2-5 gm.	1-2 weeks
70.	Barro	Terminalia bellirica Roxb.	Tree	Fruit	High blood pressure		Decoction	Oral	Twice times in a day	250 ml	1-3 months
71.	Hartakai	Terminalia chebula Retz.	Tree	Fruit	Cardiac problems		Juice	Oral	2-3 times in a day	5 ml	1-3 months
					Gastritis		Powder	Oral	Twice times in a day	3 gm.	1 month
					Fever		Juice	Oral	Twice times in a day	10-15 ml	10-15 days
					Fungal infection		Powder	Oral	Twice times in a day	2-5 gm.	10-15 days
					Eye problem		Oil	L.A.	Twice times in a day	2-3 drops	2 weeks
					Rasayana		Powder	Oral	Twice times in a day	3 gm.	3-6 months
					Skin disorders		Paste	L.A.	Twice times in a day	10 gm.	2 months
					Urological disorders		Juice	Oral	Twice times in a day	6 ml	2 months
					Gastritis		Powder	Oral	Twice times in a day	3 gm.	2 weeks
					Cough		Juice	Oral	Twice times in a day	3-6 gm.	2 weeks
					Bone disorders		Paste	L.A.	Twice times in a day	10 gm.	3 months
72.	Guduchi	Tinospora cordifolia Miers.	Climber	Stem	Gastritis		Juice	Oral	Thrice in a day	5-10 ml	10-15 days
				Whole plant	Immune modulator, Cough		Juice	Oral	Thrice in a day	5-10 ml	10-15 days
				Fruit	Obesity		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	Cough		Juice	Oral	Twice times in a day	3 ml	2 weeks

Sisnu	Urtica dioica Linn.	Tree	Leaf	GI disorders, Diarrhea	Powder	Oral	Twice times in a day	3 gm.	2 weeks
74.				Anthelminthic	Decoction + Juice	Oral	Twice times in a day	5-10 ml	3 weeks
75.	Simali	Vitex negundo Linn.	Shrub	Neurological disorders	Powder	Oral	Twice times in a day	3 gm.	3-6 months
76.	Dhataki	Woodfordia fruticosa Kurz.	Shrub	Cholera	Powder	Oral	Twice times in a day	1 gm.	10-12 days
77.	Timur	Zanthoxylum armatum DC.	Shrub	Bone disorders	Paste	L.A.	Once in a day	10-15 leaf	15 days
78.	Adhuwa	Zingiber officinale Roscoe	Herb	Cough	Powder	Oral	Twice times in a day	1 gm.	2 weeks
			Tuber	Neurological disorders, Asthma	Juice	Oral	2-3 times in a day	15-20 ml	10-15 days
			Fruit	Diabetes mellitus, Skin disorders, Eye problem	Paste, Decoction	L.A., Oral	Twice times in a day	L.A: 3gm; Oral: 200 ml	10-15 days

Abbreviation: S.N. = Serial Number, N.N. = Nepali Name, APR = As Per Requirement, L.A. = Local Application, CST = Continue Same Treatment, ml = milliliter, gm = gram, tsf = tea spoon full, RDA = Route of Drug Administration

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

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	Embellica officinalis	Fruit	Powder	Oral	2 times in a day	3 gm	1-2 month
4.	Anthelminthic	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 gigantea	Latex	Juice	Oral	2-3 times in a day	2-3 drops	2 weeks

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
		Magnifera indica	Bark	Paste	L.A.	2 times in a day	APR	1 month
		Terminalia chebula	Fruit	Paste	L.A.	2 times in a day	10 gm	3 months
		Pogostemon amarantoides	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 fruticosa	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-tristis	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	Magnifera indica	Seed	Powder	Oral	2 times in a day	3 gm	15 days
		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
		Cucurbit sativus	Seed	Juice	Oral	2 times in a day	2 tsf	15-20 days
9.	Cancer	Nyctanthes abor-tristis	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 fruticosa	Flower	Powder	Oral	2 times in a day	1 gm	10-12 days
		Euphorbia thymifolia	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 amarantoides	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	Hibiscus rosa-sinesis	Flower	Juice	Oral	2 times in a day	202 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	10 ml	CST		
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	3 gm	2-3 months		
Solanum surattense	Whole plant			Juice	Oral	2 times in a day	2 tsf	2 month		
Holarhena antidysentrica	Bark			Juice	Oral	2-3 times in a day	5-10 ml	15 days		
Euphorbia thymofolia	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		
Trudelia cristata	Root			Paste	L.A.	1 times in a day	3 gm	1-2 months		
17.	Dislocated bones & Joints			Psidium guajava	Whole plant	Powder	Oral	2 times in a day	3 gm	3 weeks
		Equisetum diffusum	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		
		Terminalia bellirica	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		
		Momordica charantia	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		
		Dendrobium teres	Whole plant	Paste	L.A.	1 times in a day	3 gm	1-2 months		
		Equisetum diffusum	Root	Paste	L.A.	1 times in a day	APR	2-3 months		
		Terminalia bellirica	Fruit	Powder	Oral	2 times in a day	2-5 gm	10-15 days		
		18.	Diarrhea	Holarhena antidysentrica	Bark	Juice	Oral	2-3 times in a day	5-10 ml	15 days
Euphorbia thymofolia	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		
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 diffusum	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		
Terminalia bellirica	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		
Momordica charantia	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		
19.	Fever	Calatropis gigantea	Leaf	Juice	Oral	2-3 times in a day	APR	3 weeks		
		Dendrobium teres	Whole plant	Paste	L.A.	1 times in a day	3 gm	1-2 months		
		Equisetum diffusum	Root	Paste	L.A.	1 times in a day	APR	2-3 months		
		Terminalia bellirica	Fruit	Powder	Oral	2 times in a day	2-5 gm	10-15 days		
		20.	Fracture & dislocation	Hibiscus rosa-sinesis	Flower	Juice	Oral	2 times in a day	202 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	10 ml	CST
				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	3 gm	2-3 months
				Solanum surattense	Whole plant	Juice	Oral	2 times in a day	2 tsf	2 month
				Holarhena antidysentrica	Bark	Juice	Oral	2-3 times in a day	5-10 ml	15 days
				Euphorbia thymofolia	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		
Trudelia cristata	Root			Paste	L.A.	1 times in a day	3 gm	1-2 months		
21.	Dysentery			Psidium guajava	Whole plant	Powder	Oral	2 times in a day	3 gm	3 weeks
		Equisetum diffusum	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		
		Terminalia bellirica	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		
		Momordica charantia	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		
		Dendrobium teres	Whole plant	Paste	L.A.	1 times in a day	3 gm	1-2 months		
		Equisetum diffusum	Root	Paste	L.A.	1 times in a day	APR	2-3 months		
		Terminalia bellirica	Fruit	Powder	Oral	2 times in a day	2-5 gm	10-15 days		
		22.	Epilepsy	Hibiscus rosa-sinesis	Flower	Juice	Oral	2 times in a day	202 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	10 ml	CST		
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	3 gm	2-3 months		
Solanum surattense	Whole plant			Juice	Oral	2 times in a day	2 tsf	2 month		
Holarhena antidysentrica	Bark			Juice	Oral	2-3 times in a day	5-10 ml	15 days		
Euphorbia thymofolia	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		
Trudelia cristata	Root			Paste	L.A.	1 times in a day	3 gm	1-2 months		
23.	Dysentery			Psidium guajava	Whole plant	Powder	Oral	2 times in a day	3 gm	3 weeks
		Equisetum diffusum	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		
		Terminalia bellirica	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		
		Momordica charantia	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		
		Dendrobium teres	Whole plant	Paste	L.A.	1 times in a day	3 gm	1-2 months		
		Equisetum diffusum	Root	Paste	L.A.	1 times in a day	APR	2-3 months		
		Terminalia bellirica	Fruit	Powder	Oral	2 times in a day	2-5 gm	10-15 days		
		24.	Eye problem	Hibiscus rosa-sinesis	Flower	Juice	Oral	2 times in a day	202 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	10 ml	CST		
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	3 gm	2-3 months		
Solanum surattense	Whole plant			Juice	Oral	2 times in a day	2 tsf	2 month		
Holarhena antidysentrica	Bark			Juice	Oral	2-3 times in a day	5-10 ml	15 days		
Euphorbia thymofolia	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		
Trudelia cristata	Root			Paste	L.A.	1 times in a day	3 gm	1-2 months		
25.	Dislocated bones & Joints			Psidium guajava	Whole plant	Powder	Oral	2 times in a day	3 gm	3 weeks
		Equisetum diffusum	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		
		Terminalia bellirica	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		
		Momordica charantia	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		
		Dendrobium teres	Whole plant	Paste	L.A.	1 times in a day	3 gm	1-2 months		
		Equisetum diffusum	Root	Paste	L.A.	1 times in a day	APR	2-3 months		
		Terminalia bellirica	Fruit	Powder	Oral	2 times in a day	2-5 gm	10-15 days		
		26.	Fungal infection	Hibiscus rosa-sinesis	Flower	Juice	Oral	2 times in a day	202 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	10 ml	CST		
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	3 gm	2-3 months		
Solanum surattense	Whole plant			Juice	Oral	2 times in a day	2 tsf	2 month		
Holarhena antidysentrica	Bark			Juice	Oral	2-3 times in a day	5-10 ml	15 days		
Euphorbia thymofolia	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		
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 diffusum	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				
Terminalia bellirica	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				
Momordica charantia	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				
Dendrobium teres	Whole plant	Paste	L.A.	1 times in a day	3 gm	1-2 months				
Equisetum diffusum	Root	Paste	L.A.	1 times in a day	APR	2-3 months				
Terminalia bellirica	Fruit	Powder	Oral	2 times in a day	2-5 gm	10-15 days				

27.	Gastritis	Alstonia scholaris	Bark	Powder	Oral	2 times in a day	1 gm	1 month
		Pterocarpus marsupium	Bark	Powder	Oral	2 times in a day	1 gm	15-20 days
		Terminalia alata	Bark	Powder	Oral	1-2 times in a day	2-5 gm	1-2 weeks
		Azadirachta indica	Bark & Leaf	Juice	Oral	2 times in a day	5-10 ml	CST
		Aegle marmelos	Fruit	Powder	Oral	2 times in a day	1 gm	1 month
		Emblica officinalis	Fruit	Powder	Oral	2 times in a day	4 gm	1-2 month
		Terminalia bellirica	Fruit	Powder	Oral	2 times in a day	3 gm	1 month
		Terminalia chebula	Fruit	Powder	Oral	2 times in a day	3 gm	2 weeks
		Adhatoda vasica	Leaf	Juice	Oral	1 times in a day	10-20 ml	8 days
		Azadirachta indica	Leaf	Powder	Oral	2 times in a day	3gm	CST
		Cassia fistula	Root	Powder	Oral	2 times in a day	1-5 gm	2 weeks
		Acacia arabica	Root & Bark	Powder	Oral	2 times in a day	10-15 ml	30 days
		Rauwolfia serpentina	Root & Leaf	Powder	Oral	1-2 times in a day	3 gm	1-2 weeks
		Pogostemon amaranthoides	Stem	Juice	Oral	2 times in a day	5 ml	10-15 days
		Tinospora cordifolia	Stem Climber	Juice	Oral	3 times in a day	5-10 ml	10-15 days
		Allium cepa	Tuber	Powder	Oral	2 times in a day	APR	1-2 months
		Curcuma domestica	Tuber	Powder	Oral	2 times in a day	2 gm	2-4 weeks
		Cissampelos pariera	Whole plant	Juice	Oral	2 times in a day	10-15 ml	30 days
		Equisetum diffusum	Whole plant	Powder	Oral	1 times in a day	1 gm	1 month
		Oxalis corniculata	Whole plant	Powder	Oral	2 times in a day	1 gm	15-20 days
		Adhatoda vasica	Whole plant	Powder	Oral	2 times in a day	1 gm	10-15 days
		Urtica dioica	Leaf	Powder	Oral	2 times in a day	4 gm	3 weeks
28.	GI disorders	Aegle marmelos	Fruit	Juice	Oral	2 times in a day	10-20 ml	1 month
		Asperagus racemosus	Root	Paste	Oral	2 times in a day	3 gm	2 months
29.	Gonorrhea	Hibiscus rosa-sinensis	Flower	Juice	Oral	2 times in a day	200 ml	1-2 weeks
30.	Gout	Curculigo orchioideis	Tuber	Juice	Oral	2 times in a day	3 ml	2-3 months
31.	Hair loss	Lawsonia inermis	Leaf	Paste	L.A.	1 times in a day	APR	6 times
32.	Headache	Cucurmid sativus	Seed	Juice	Oral	2 times in a day	1 tsf	15-20 days
33.	High blood pressure	Terminalia arjuna	Bark	Decoction	Oral	2 times in a day	250 ml	1-3 months
		Ficus bengalensis	Leaf	Decoction	Oral	2 times in a day	10-15 ml	10-15 days
34.	Immune modulator	Tinospora cordifolia	Whole plant	Juice	Oral	3 times in a day	5-10 ml	10-15 days
35.	Indigestion	Piper longum	Fruit	Powder	Oral	2 times in a day	3 gm	10-15 days

36.	Jaundice	Ficus religiosa	Bark	Decoction	Oral	1-2 times in a day	20 ml	1 month
		Cuscuta reflexa	Climber	Powder	Oral	2 times in a day	3 gm	1 month
		Ricinus communis	Climber	Powder	Oral	2 times in a day	3 gm	1 month
		Nyctanthes abor-tristis	Flower & Leaf	Decoction	Oral	1-2 times in a day	20 ml	1 month
		Ficus religiosa	Fruit	Decoction	Oral	1-2 times in a day	20 ml	1 month
		Alstonia scholaris	Root	Powder	Oral	2 times in a day	1 gm	1 month
37.	Leucoderma	Tectaria coadunata	Root	Decoction	Oral	2-3 times in a day	20 ml	1-1.5 months
		Chlorophytum borivilianum	Tuber	Paste	L.A.	1-2 times in a day	2-3 gm	APR
38.	Menorrhoea	Hibiscus rosa-sinensis	Flower	Juice	Oral	2 times in a day	201 ml	1-2 weeks
39.	Mental disorder	Centella asiatica	Whole plant	Powder	Oral	2 times in a day	1 gm	1/2-3 month, APR
40.	Neurological disorders	Acacia sinuta	Fruit	Powder	Oral	2 times in a day	3 gm	3-6 months
		Curcuma caesia	Fruit	Juice	Oral	2 times in a day	3 ml	3 months
		Mucuna prurita	Fruit	Juice	Oral	2-3 times in a day	3-5 ml	CST
		Nyctanthes abor-tristis	Leaf	Paste	L.A.	1-2 times in a day	MAY	CST
		Vitex negundo	Leaf	Powder	Oral	2 times in a day	3 gm	3-6 months
		Curculigo orchoides	Tuber	Juice	Oral	2 times in a day	5-10 ml	2-3 months
41.	Obesity	Zingiber officinale	Tuber	Juice	Oral	2-3 times in a day	15-20 ml	10-15 days
42.	Pain	Tinospora cordifolia	Fruit	Juice	Oral	3 times in a day	5-10 ml	10-15 days
		Madhuwa indica	Flower	Paste	L.A.	2 times in a day	APR	CST
		Ricinus communis	Leaf & Fruit oil	Oil mas-sage	L.A.	2-3 times in a day	1 ml	1 month
		Azadirachta indica	Whole plant	Paste	L.A.	2 times in a day	APR	CST
43.	Paralysis & Stiffness of joints	Rhododendron anthopogon	Flower	Juice	Oral	3 times in a day	5-10 ml	3 months
		Piper nigrum	Fruit	Paste	L.A.	2 times in a day	APR	CST
		Arbus precatorius	Seed	Paste	L.A.	1 times in a day	APR	1 month
44.	Piles	Shorea robusta	Bark	Paste	L.A.	1 times in a day	1 gm	1-2 days
		Calatropis gigantia	Root	Powder	L.A.	2 times in a day	1 gm	2 weeks
		Caesalpinia bonduc	Root (Ash)	Paste	L.A.	1 times in a day	APR	5 times
45.	Rasayan	Embluca officinalis	Fruit	Powder	Oral	2 times in a day	3 gm	Regular
		Terminalia bellirica	Fruit	Powder	Oral	2 times in a day	3 gm	3-6 months
46.	Respiratory disorders	Ficus bengalensis	Leaf	Decoction	Oral	2 times in a day	10-15 ml	10-15 days
		Crataeva nurvala	Bark	Decoction	Oral	1-2 times in a day	10 ml	3 weeks
		Piper longum	Fruit	Powder	Oral	2 times in a day	3 gm	10-15 days
47.	Sciatica	Helminthostachys zeylanica	Root	Juice	Oral	2 times in a day	5-10 ml	3 months

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	3gm	CST
		Calatropis gigantea	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	3-5 ml	1-1.5 months
		Ficus bengalensis	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		
AMRO	=	WHO Regional Office for the America
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 respondent
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