Ethnomedicinal Uses of Plant Resources in Puranchaur of Kaski District, Western Nepal

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Research

Abstract

Background: Plants are being utilized worldwide as a primary health care need. The reliance is also prevalent in Nepal, aided by its high biological diversity. The rich floral composition in Puranchaur offers a remarkable opportunity for ethnomedicinal research. This study aimed to index the ethnomedicinal knowledge of plant species of Puranchaur of Kaski district.

Methods: Open-ended semi-structured questionnaires were conducted to collect data during October 2021 to November 2021 using Key Informant Interview (KII) and Focus Group Discussions (FGDs). The reported traditional uses were asked with traditional healers and cross-validated with previously published literature. Data were analyzed and represented in a tables, graphs, radar, and pie charts.

Results: A total of 131 medicinal plants, belonging to 67 families and 119 genera were recorded to treat 156 different ailments. Poaceae and Asteraceae families represent the maximum number of plants used (N=11). Herbs were most frequently used (N=67) among the different habits of plants. The most preferred form of medication was paste (N=56), followed by juice (N=54), raw (N=47), powder (N=34), decoction (N=19), and cooked (N=10). Leaf cured a large number of diseases (N=112). Commonly used plant parts were seed (N=67) followed by leaf (N=58), flower (N=32), root (N=31), stem (N=29), fruit (N=25), bark (N=22), whole plant (N=13), latex (N=7), tuber (N=6), rhizome (N=5), bulb (N=1), and cornsilk (N=1).

Conclusion: This study concluded that documentation and preservation of biodiversity and its associated knowledge is necessary which could generate further research activities. *Ocimum sanctum* is the most frequently cited medicinal plant with Relative Frequency Citation (RFC) 0.44 followed by *Acorus calamus* L. (0.41), *Zingiber officinale* Roscoe (0.40), *Centella asiatica* (L.) Urb. (0.38), and *Mentha spicata* L. (0.37) and the Informant Consensus Factor (F_{ic}) was found to be highest for digestive alignment category (0.8) and lowest for ear (0.00). The pharmacological and phytochemical studies of these medicinal plants should be carried out for their scientific validation.

Keywords: Diseases and ailments, Ethnomedicine, Indigenous knowledge, Medicinal plants, Puranchaur

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Background

Plants have served mankind in numerous ways as a source of food to clothing, shelter, and especially medicine since time immemorial. They have been utilized to heal and treat diseases as traditional medicine (Gurib-Fakim 2006, Oliveira *et al.* 2011, Arshad *et al.* 2014) and performed an indispensable role in the health care system for a long time (Thorsen & Pouliot 2016). The World Health Organization (WHO) describes traditional medicine as the "Sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment or physical and mental illness" (WHO 2013). WHO stated that 25% of modern medicines are derived from traditionally used plant sources and 75% of herbal drugs from traditional medicinal herbal drugs (Wang *et al.* 2002). Ethnomedicine is associated with the study of traditional medicine practices and is being recognized worldwide due to the support in formulation and innovation of various modern medicines (Acharya & Acharya 2009, Acharya 2012). Over 21,000 plant species have been documented for their medicinal uses worldwide (WHO 2002). About 80% of people on the globe are still dependent on medicinal plants for their day today health care (WHO 2002; Bandaranayake 2006).

Nepal is one of the developing countries which is regarded as a natural showroom of biodiversity (Magar 2008). Although Nepal occupies 0.1% of the world's land area, it consists of nearly 3.2% of the total known flora of the world (GON/MoFSC 2014). It consists of more than 5,309 species of plants (Rajbhandari *et al.* 2017) among which 1,950 plant species are utilized as a medicine (Ghimire 2008). Bhattarai and Ghimire (2006) mentioned that 143 species are registered as commercial plants in Nepal and over 300 species of medicinal plants are traded from Nepal (Ghimire *et al.* 2016). In Nepal, only 17% of the people living in urban areas have modern medicinal facilities but the rest of the people still rely on the traditional medicinal system for health-related problems (Ignacimuthu & Ayyanar 2006, CBS 2007, Uprety *et al.* 2010, UNEP 2012, Sathiyaraj *et al.* 2015). Furthermore, the applicability of ethnomedicinal usage of plants is slowly increasing in the modern world, due to the lesser or no side effects and easy availability (Jordan *et al.* 2010). Although there is a wide implication of traditional knowledge for the use of medicinal plants, the local healing system is affected by migration, rapid urbanization, increasing modern health systems, and climate change worldwide including Nepal (Shanley & Luz 2003, Teshome-Bahiru 2006, Quinlan & Quinlan 2007, Rokaya *et al.* 2010, Abdullahi 2011, Telwala *et al.* 2013).

Traditional knowledge is transferred through indigenous traditional healers and experienced people from generation-by-generations verbally only. Knowledge about the different medicinal properties of plants is based on necessities, expertise, observation from older people, and trial and error (Malla *et al.* 2015). So, there is a high potentiality of loss of traditional knowledge as it is restricted to only some members of the society and younger generations are not fascinated due to the availability of modern health systems (Acharya & Acharya 2010). Furthermore, the increase in population, technological advancement, and development of allopathic medicines poses the greatest threat to indigenous traditional medicine. Also, Dias *et al.* (2012) mentioned that only 10% of world biodiversity is assessed for its medicinal implications. So, this paper is endeavored to identify and document the locally used medicinal plants with their parts used, diseases cured, and the mode of application as practiced and would be the baseline for pharmacologists, phytochemists, pharmacognosists, traditional healers, ethnobotanists, ayurveda experts, policymakers, government authorities, and ecologists for the further exploration of locally used medicinal plants scientifically.

Materials and Methods

The study was conducted in Puranchaur (Figure 1) located in the middle part of Kaski district, Western Nepal during September 2021 to November 2021. It lies in between 28^0 16′ 41′′ N to 28^0 20′ 28′′ N latitude and 83^0 56′ 04′′ E to 84^0 01′ 16′′ E longitude at a lap of Machhapuchhre and touch Setigandaki river in its west and extend from 980 to 2640m above Mean Sea Level (MSL). Brahmin, Newars, Gurung, Chhetri, and Dalits are the major caste groups of Puranchaur (Khatri 2012) and cover an area of 18.8 km^2 with population of 3597 persons living in 865 individual households (CBS 2011).

It is surrounded by Sardikhola in the North, Ghachowk, and Lahachowk in the West, and Lamachour in the Southeast. The semi-fertile soil with the good growth of the sub-tropical forest and herbal plants is the main characteristic of this area. Lamachour-Machhapuchhre regional road connects this area with the Pokhara valley (Baral 2012). The climate is sub-tropical with an average annual rainfall of 3353mm and temperature ranges from 6-33^0C. The large numbers of NTFPs for the treatment of different diseases were reported from different valley plains, mid sloppy land, and hilly region of this area. Puranchaur is surrounded by a thick green forest of different

dominant trees and plants including Chinaberry (*Melia azederach*), Marking nut (*Semecarpus anacardium*), Indian chestnut (*Castonopsis indica*), Silk cotton tree (*Bombax ceiba*), Golden shower (*Cassia fistula*), Sacred fig (*Ficus religiosa*), and others (Khatri 2012).

Data Collection

A traditional healer was identified at the beginning in consultation with local peoples, and snowball sampling was carried out for further study. A questionnaire survey was used to collect information on plant parts, their uses, and the local name of the different medicinal plants found in this study area. The data were gathered by key Informant Interview (KII) (N=8) and Focus Group Discussions (FGDs) (N=5) using an open-ended semi-structured questionnaire. A total of (N=63) individuals of age (35 to 76 years old) having traditional knowledge on plants were asked for the further data collection on medicinal uses. Key informants were of the old age group (above 50 years old), schoolteachers, ayurveda experts, CFUGs, and local healers which have information on the treatment of various ailments using different parts of plant species. FGDs provided additional information on the medicinal uses of some unknown plants which was seen during our field visit. The unidentified plants were photographed in the field and verified with the help of expert consultation. The plant list (http://www.theplantlist.org/) was followed for the botanical nomenclature. We screened some data with previously published literature on ethnomedicinal uses of various plant species in Puranchaur, Kaski district (Khatri 2012). The ethnomedicinal data was mainly compared with Khatri (2012) to highlight significant increase or decrease in the plant species used in Puranchaur. This study further exaggerates essential information on Informant Consensus Factor (F_{IC}) and Relative Frequency of Citation (RFC) of medicinal plants used. The secondary information was collected by using several research papers, textbooks, publications, and thesis from online portals like Scopus, Research Gate, and Google Scholar. The age and gender distribution, and education level of interviewed respondents are shown in Table 1 and Table 2.

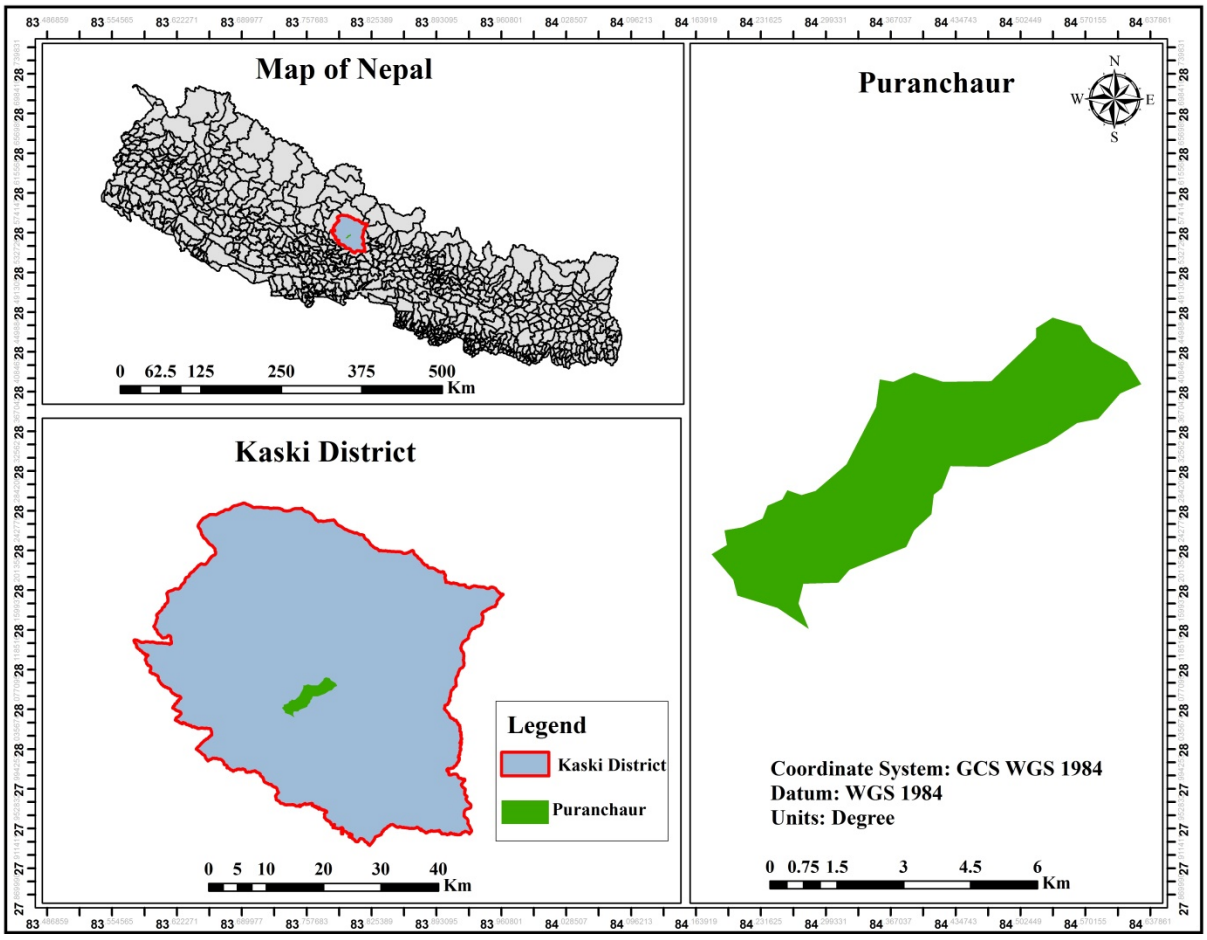

Figure 1. Map of study area showing Puranchaur of Kaski district, Nepal

Table 1. Age and gender distribution of total respondents

Age group	Gender		Number of persons	Percentage (%)
	Male	Female		
35-46	7	4	11	17.5
47-52	3	5	8	12.7
53-65	10	7	17	26.9
66-72	9	4	13	20.6
73-76	12	2	14	22.2
Total			63	

Table 2. Education level of respondents

Education level	No of individuals	Percentage (%)
Illiterate	31	49
Primary	13	21
Middle	9	14
Secondary	6	10
University	4	6
Total	63	

Data Analysis

The collected data were pooled and analyzed in MS-Excel 2010 to know qualitative information regarding local name, families, parts used, mode of application, the number of total alignment treatments and are expressed in number and percentage. The tables, graphs, radar, and pie-chart represent the result of overall ethnomedicinal study in Puranchaur, Kaski, Nepal. The Informant Consensus Factor (F_{IC}) was calculated as per the formula given by (Heinrich *et al.* 1998, Singh *et al.* 2012, Bhat *et al.* 2014) to find out the homogeneity between information and informants.

$$F_{IC} = \frac{N_{ur} - N_t}{N_{ur} - 1}$$

Where, F_{IC}= Informant consensus factor, N_{ur} = the number of use report in a particular illness category by informants, N_t= the number of taxa or species used to treat that particular category by informants.

The Frequency of Citation (FC) and Relative Frequency of Citation (RFC) for each medicinal plant species were calculated using the formula purposed by Tardio and Pardo-de-Santayana (2008).

$$RFC = \frac{FC}{N}$$

Where, RFC= Relative Frequency of Citation, FC=Number of respondents who reported the use of medicinal plant species, N=total number of respondents took part in the survey.

Results

The study area consists of 131 species of medicinal plants belonging to 67 families and 119 genera for the treatment of 156 different ailments. Plant species with their scientific name, family, local name, habit, parts used, medicinal use, and mode of application is mentioned in (Appendix 1). Puranchaur consists of a large diversity of plant species. Among the total plant species, herbs representing 51.1% (N=67) of the plant species were the primary source of medicinal plants followed by the trees (21.4%, N=28), shrubs (20%, N=26), climbers (5.3%, N=7), ferns (1.5%, N=2), and grass (0.7%, N=1) (Figure 2). The plant species from 67 families were recorded to treat various types of ailments. Family Poaceae and Asteraceae represented the highest number of species (N=11) followed by Lamiaceae (N=7), Euphorbiaceae (N=6), Moraceae (N=5), and Fabaceae (N=5). The number of species representing the remaining families was mentioned in Appendix 1. A total of (N=13) types of plant parts were used. Among them, seed was used most frequently (N=67) to cure 67 number of diseases followed by leaf (N=58, 112), flower (N=32, 32), root (N=31, 64), stem (N=29, 29), fruit (N=25, 63), bark (N=22, 66), whole plant (N=13, 43), latex (N=7, 7), tuber (N=6, 31), rhizome (N=5, 17), bulb (N=1, 2), and cornsilk (N=1, 5). Altogether, the study recorded the treatment of 156 different ailments from 131 species of plants (Figure 3). Both dried and fresh parts of the plant were used either in raw form or through paste, juice, powder, cooked, and decoction as a mode of medication (Figure 4). The directly used and directly consumed species were categorized in raw form. The paste includes root

paste, bark paste, leaf paste, seed paste, stem paste, and flower paste. The juice used was obtained from flower, fruit, and seed. The paste was the most commonly used form of medication that comprises 25.5% of plant species followed by juice (24.5%), raw form (21.4%), powder (15.5%), decoction (8.6%), with least as a cooked (4.5%) (Figure 4). The highest number of plant species (N=56) was used in paste form and least in cooked form (N=10) (Figure 5). These ailments were grouped into 13 categories based on the International Classification of Primary Care (ICPC) (Miller *et al.* 2009) i.e., digestive (N=206), general and unspecified (N=114), skin (N=109), respiratory (N=88), endocrine, metabolic, and nutritional (N=47), neurological (N=45), musculoskeletal (N=37), urinary system (N=36), sexual and female problems (N=26), circulatory (N=24), the tooth (N=11), eye (N=4), and ear (N=3) (Figure 6). The use of plant species for specific categories of ailments and diseases is listed in Table 3. Furthermore, the biomedical uses of these species are also presented in Table 3. The most commonly treated diseases were fever (N=36), indigestion (N=32), cough (N=29), gastritis (N=28), and headache (N=25) (Figure 7). *O. sanctum* is the most frequently cited medicinal plant with Relative Frequency Citation (RFC) 0.44 followed by *Acorus calamus* (0.41), *Zingiber officinale* (0.40), *Centella asiatica* (0.38), and *Mentha spicata* (0.37) (Figure 8). The Informant Consensus Factor (F_{ic}) was found to be highest for Digestive alignment category (0.8) followed by skin (0.76), general and unspecified (0.67), neurological (0.66), endocrine, metabolic, and nutritional (0.59), sexual and female problems (0.56), respiratory (0.55), urinary system (0.51), musculoskeletal (0.36), circulatory (0.35), eye (0.33), tooth (0.2), and ear (0.00) as shown in Table 3.

Table 3. Specific categories of diseases and ailments, and the number of plant species used for their cure

Disease and Ailment Categories	Biomedical Terms	No of Plants	Total no. of plants	Total use reports (N_{UR})	Informant consensus factor (F_{IC})
General and unspecified	Antipyretic	2	114	38	0.67
	Body cooling	14			
	Body weight	1			
	Cancer	3			
	Chest pain	1			
	Dehydration	5			
	Dog bite	1			
	Febrifugal	1			
	Fever	36			
	Heat sickness	1			
	Immunity power	3			
	Lose weight	1			
	Measles	2			
	Mouth problems	1			
	Mouth ulcer	2			
	Poisoning	1			
	Scorpion bite	1			
	Sepsis	2			
	Snake bite	6			
	Swelling	4			
	Temperature maintenance	4			
	Typhoid	6			
	Ulcer	14			
	Weakness	1			
	Yellow fever	1			
Digestive	Vomiting	5	206	43	0.80
	Stomachache	13			
	Constipation	9			
	Diarrhea	23			
	Dysentery	16			
	Gastritis	28			
	Intestinal worms	7			
	Nausea	2			
	Indigestion	32			
	Jaundice	14			

	Flatulence	3			
	Anthelmintic	1			
	Appetizer	2			
	Abdominal pain	2			
	Abdominal disorders	1			
	Intestinal diseases	1			
	Dyspepsia	3			
	Bloody stool	2			
	Carminative	2			
	Cholera	5			
	Constipation	9			
	Gall stones	1			
	Liver fluke	1			
	Liver disorder	2			
	Pinworms	1			
	Peptic ulcer	3			
	Purgative	1			
	Parasitic worm	1			
	Stomach problems	12			
	Stomach ulcers	1			
	Tonic	2			
	Tapeworms	1			
Tooth	Dental plague	1	11	9	0.20
	Teeth bleeding	1			
	Tooth decay	2			
	Toothache	7			
Ear	Earache	3	3	3	0.00
Eye	Conjunctivitis	1	4	3	0.33
	Eye problems	2			
	Sore eyes	1			
Circulatory	Blood purification	5	24	16	0.35
	Heart problems	9			
	Lowers high blood pressure	6			
	Regulates blood pressure	4			
Musculoskeletal	Back pain	4	37	24	0.36
	Body ache	3			
	Inflammation	6			
	Joint fractures	5			
	Joint pain	10			
	Joint problems	1			
	Muscular spams	1			
	Rheumatism	7			
Neurological	Anxiety	2	45	16	0.66
	Concentration	1			
	Epilepsy	2			
	Headache	25			
	Hemicrania	1			
	Insomnia	5			
	Memory power	2			
	Mental problem	1			
	Migraine	1			
	Nerve problems	1			
	Neuro problem	2			
	Stimulant	1			
	Stress	1			

Respiratory	Asthma	9	88	40	0.55
	Breathing problem	2			
	Bronchitis	7			
	Chest pain	1			
	Common cold	8			
	Cough	29			
	Covid-19	3			
	Hiccups	1			
	Nasal blocking	1			
	Pharyngitis	1			
	Pneumonia	3			
	Respiratory problems	4			
	Respiratory tract infections	1			
	Sinusitis	7			
	Sore throat	3			
	Throat pain	2			
	Throat problem	1			
	Tonsillitis	4			
	Tuberculosis	1			
Skin	Allergy	1	109	27	0.76
	Antiseptics	5			
	Astringent	2			
	Bleeding	11			
	Boils	4			
	Burns	5			
	Chicken pox	1			
	Cuts and wounds	22			
	Dandruffs	1			
	Eczema	3			
	Face burns	1			
	Face clearing	1			
	Fungal infections	1			
	Hair fall	2			
	Hair growth	1			
	Leprosy	4			
	Leucoderma	1			
	Piles	10			
	Pimples	1			
	Scabies	7			
	Scurvy	2			
	Skin problems	23			
Endocrine, Metabolic and Nutritional	Diabetes	10	47	20	0.59
	Energy	14			
	Protein	4			
	Sugar	18			
	Thyroid gland metabolism	1			
Urinary System	Diuretic	2	36	18	0.51
	Kidney pain	1			
	Kidney problems	18			
	Kidney stone	2			
	Urinary problems	10			
	Urinary tract infection	2			
	Urination burning	1			
Sexual and female	Aphrodisiac	2	26	12	0.56
	Blennorrhagia	1			

problems	Female sterility	1
	Gonorrhea	4
	Impotence	1
	Leucorrhea	1
	Mastitis	1
	Maternity problem	1
	Menstrual problems	9
	Retention of placenta	1
	Sexual weakness	2
	Syphilis	1
	Urogenital disorder	1

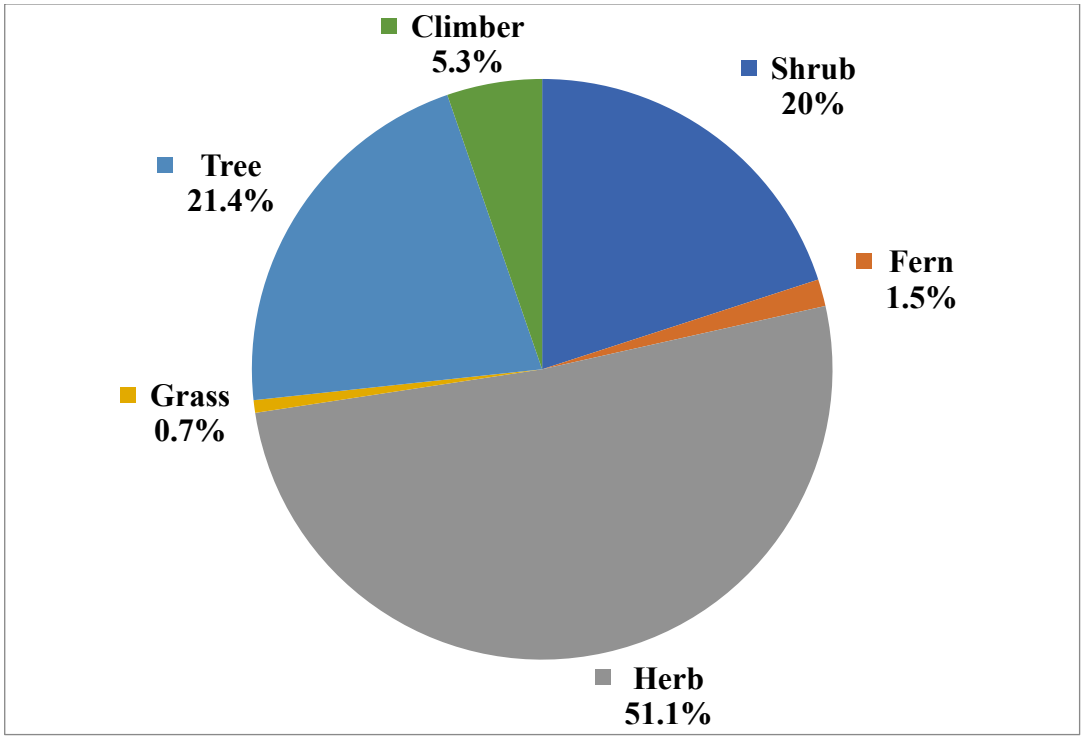

Figure 2. Habit wise distribution of medicinal plants

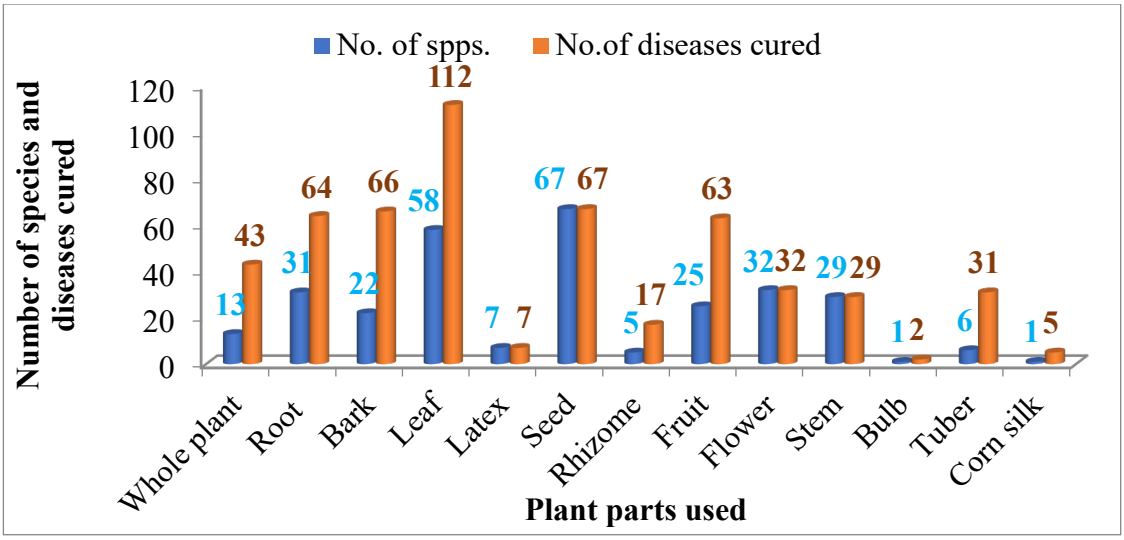

Figure 3. Number of diseases cured based on plant parts

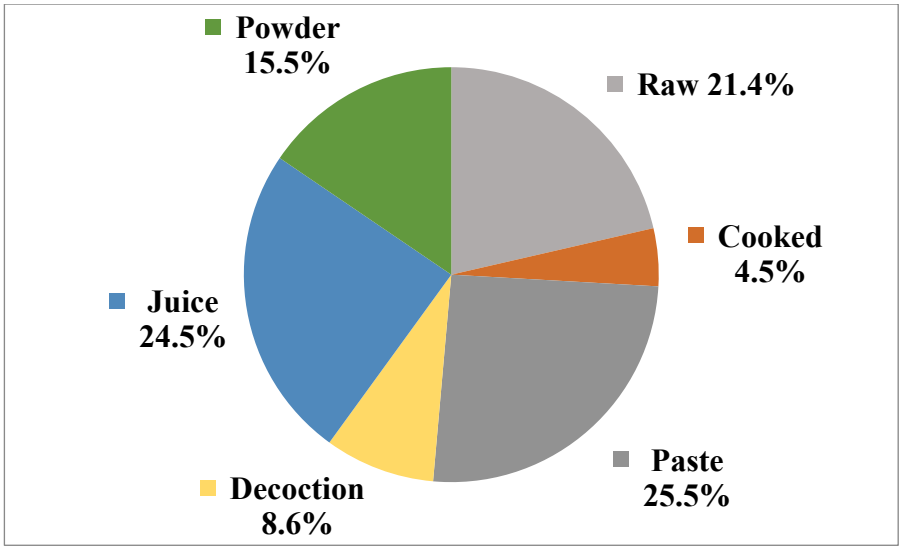

Figure 4. Plant species based on method of preparation of medicine

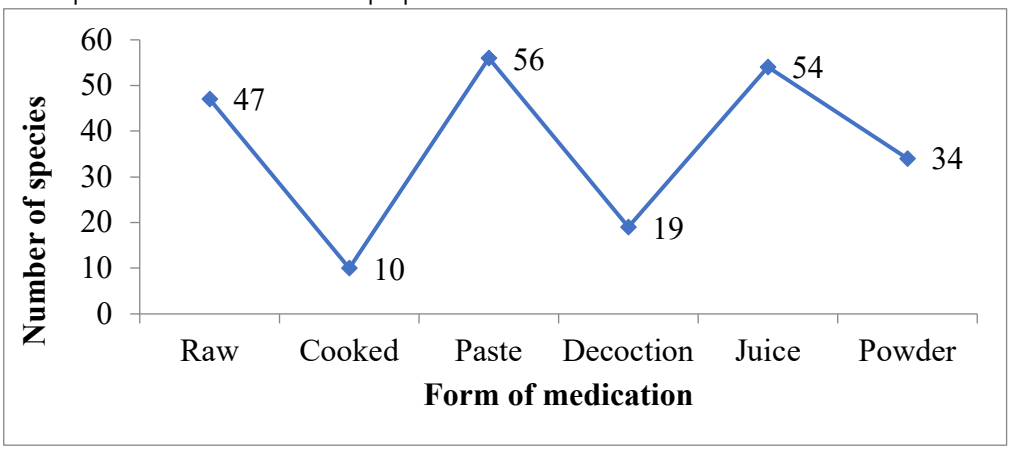

Figure 5. Number of species used in the form of medication

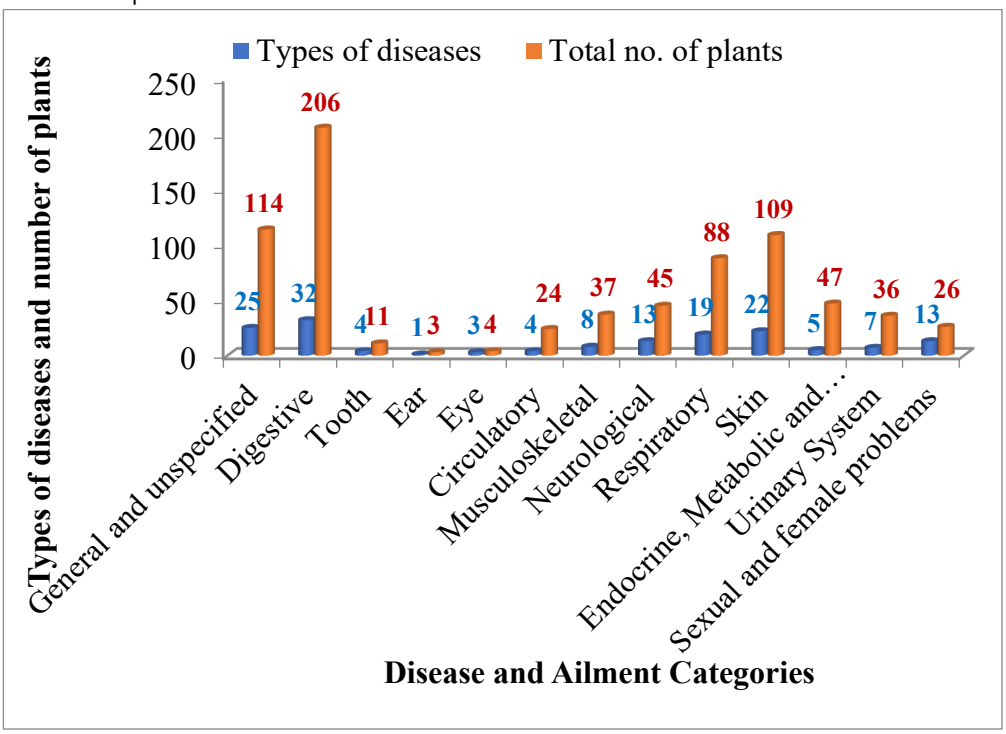

Figure 6. Disease and ailments categories with types of diseases and number of plants

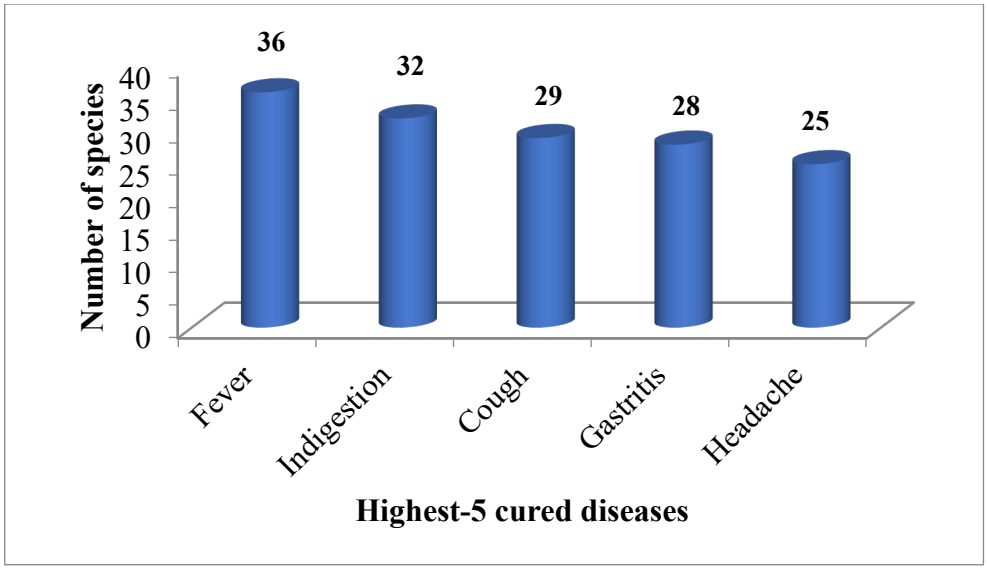

Figure 7. Highest five cured diseases with number of species

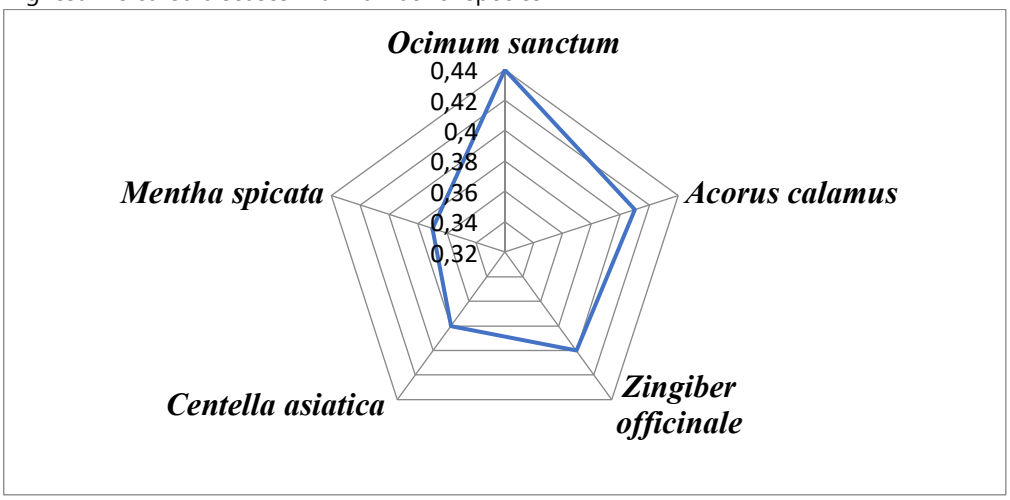

Figure 8. Radar chart showing the relative frequency of citation of the 5 most frequently cited medicinal plant species

Discussion

This study reported 131 plant species that are used by the people of Puranchaur for the treatment of a total of 156 ailments. The herbs occupied a major percentage of the habitat (51%) in our study which is similar to the study of Singh (2015), Pariyar *et al.* (2021), Paudyal *et al.* (2021) and in the Bhojpur, Rupendehi, and Bardia districts of Nepal. Different studies of Nepal (Shrestha & Dhillion 2003, Rokaya *et al.* 2010, Uprety *et al.* 2010, Rokaya *et al.* 2012) revealed the dominance of herbs followed by trees and shrubs which is related to our findings. The reasons for having the highest percentage of herbs are due to its high abundance (Rokaya *et al.* 2010), ease to collect and transport (Uprety *et al.* 2010), and ease of extracting active compounds (Shrestha & Dhillion 2003). Herbs are relatively easy to cultivate and can fulfill the demand if needed in higher amounts (Bekalo *et al.* 2009). The family Poaceae and Asteraceae contributed the highest number of species (N=11) and correlates with the findings of Adhikari et al. (2019) in Machhapuchchhre rural municipality in the same district. Also, Mesfin *et al.* (2009) and Bhattarai *et al.* (2010) reported Asteraceae as a leading family with the highest number of medicinal plants in Northwestern Ethiopia and the trans-Himalayan arid zone of Mustang district, Nepal respectively. Asteraceae, Fabaceae, and Poaceae family record the higher number of useful medicinal plants which were already manifested in Nepal (Kunwar *et al.* 2018). The peoples of the Kaski district are rich in ethnomedicinal knowledge and depend on herbal plants for remedies of common health problems like gastrointestinal, respiratory, cardiovascular, and musculoskeletal disorders (Adhikari *et al.* 2019). The majority of plants were used to treat gastrointestinal disorders in our study area which is parallel to the findings of several types of research (Kunwar *et al.* 2006, Singh *et al.* 2012, Rokaya *et al.* 2014, Malla *et al.* 2015). The fungal infections were observed in the hands and legs of farmers in Puranchaur due to their long-time exposure to the soil (Adhikari *et al.* 2019). The majority of ailments (N=112) were

treated by the use of the leaf. This may be due to the presence of a higher concentration of secondary metabolites (Bhattarai *et al.* 2009, Umair *et al.* 2019). Plant paste (25.5%, N=56) was most commonly used in the form of medication followed by juice (24.5%, N=54) but there is less difference in their percentage used. This finding is contrary to the study of Malla *et al.* (2015) in the Parbat district where juice (50.7%) was found as a major form of medication followed by paste (36.3%). The F_{IC} in our study was highest for digestive alignment which is parallel to the study of Malla *et al.* (2015) mentioning gastro-intestinal, parasitic, and hepatobiliary ailment categories as the highest agreement with $F_{IC.}$ The juice was most commonly used due to its effectiveness and ease in preparation (Singh *et al.* 2017). Juice, decoction, paste, and powder are the popular form of therapeutic preparation from medicinal plants in western Nepal (Burlakoti & Kunwar 2008). The herbal medicines were given orally to cure various ailments which are parallel to the study carried out in different ethnic communities in Nepal and abroad (Uprety *et al.* 2010, Singh *et al.* 2012, Kunwar *et al.* 2013, Luitel *et al.* 2014). The rhizome of *Acorus calamus* was used in the treatment of respiratory disorders like cough, cold, asthma, pneumonia, chest pain which has also been reported from other parts of Nepal including Nawalparasi (Bhattarai *et al.* 2009), Ghandruk (Adhikari & Fischer 2010), Rasuwa (Uprety *et al.* 2010), Gulmi (Acharya 2012), and Rupandehi (Singh *et al.* 2012). The leaf of *Aloe vera* was used on the burnt area, and skin which coincides with the finding of Adhikari *et al.* (2019). The leaf of *Bryophyllum pinnatum* is used to remove pus from the ear (Singh & Hamal 2013) and relieve ear pain (Adhikari *et al.* 2019). The root juice of *Cirsium verutum* is used to boost energy and help in body cooling which is unique in our study as several researchers reported its use in urinary problems (Bhattarai 1992, Acharya 2012), sore throat, and epistaxis (Manandhar 1995). The study of Manandhar (1992), Acharya (1996), and Oli *et al.* (2005) mentioned the use of *Woodfordia fruticosa* flower for the treatment of dysentery which is similar to our finding. Our study recorded the use of *Tinospora cordifolia* (stem and leaf), *Cymbopogon citratus* (leaf), and *Pogostemon benghalensis* (leaf and fruit) against the Covid-19 (SARS-CoV-2). *Cinnamomum tamala* is used in the treatment of indigestion which was also mentioned in the research of Luitel *et al.* (2014) carried in the Tamang community of Makawanpur district. Some of the elderly people said that they haven't taken any allopathic medicine in their lifetime. The young generations have little knowledge of herbal medicines and highly depend on allopathic medicines instead of using herbal medicines. Therefore, the young generation should be trained and encouraged to prevent the declining interest of youngsters toward traditional medicines (Miya *et al.* 2020). A phytochemical and pharmacological study needs to be carried out for the proper validation of the medicinal properties of these plant species.

Conclusion

People of Puranchaur are very prosperous in ethnomedicinal knowledge and are employing varieties of plants to cure and heal different diseases and health-related problems. A total of 131 species of medicinal plants belonging to 67 families and 119 genera were reported to treat 156 different ailments. Poaceae and Asteraceae represented the highest number of used plant species and herbal paste are the frequently used among diverse habitats of plant. This study revealed that the people in the study area have abundant knowledge and experiences to apply different plant parts, their collection, preparation, dosages, and their utilization or consumption. Their knowledge and understanding are based on traditional beliefs, so an investigation must be conducted for correct identification, scientific validation which may contribute to herbal and pharmaceuticals industries in Nepal. Also, people's dependency on such plants has been drastically declined because of easily available allopathic drugs. The young generation should be promoted and encouraged in traditional medicinal knowledge. Due to the lack of proper management, the richness and abundance of plant species is declining because of harvesting in younger stage haphazardly, overexploitation, construction of roads and buildings, and deforestation. So, this valuable knowledge must be documented to preserve the ethnomedicinal knowledge which is the root for developing new and safer medicines and recommends for protection as well as sustainable utilization of valuable medicinal plants by adopting effective conservation procedures.

Declarations

List of abbreviations: Habit: H= Herb, S= Shrub, C= Climber, T= Tree, G= Grass, F= Fern
Parts used: W= Whole plant, B= Bark, R= Root, Lt= Latex, Se= Seed, Rh= Rhizome, Fr= Fruit, L= Leaf, S= Stem, Fl= Flower, Tu= Tuber, Cs= Corn Silk, Bu= Bulb

Ethics approval and consent to participate: All participants gave oral prior informed consent when provided with the questionnaire form to gather ethnomedicinal knowledge.

Consent for publication: Oral permission

Availability of data and materials: The data set generated for the current study is available upon request.

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Appendix 1. Ethnomedicinal uses of plant species in Puranchaur of Kaski district, western Nepal

Family	Local name	Scientific name	Habit	Parts used	Medicinal uses	Mode of application	FC	RFC
Acanthaceae	**Asuro**	*Justica adhatoda* L.	Sh	L, Fl	Jaundice, vomiting control, typhoid, headache, sinusitis, mouth problems, blood pressure, intestinal worms	Leaf and flower paste is consumed.	6	0.10
Acoraceae	**Bojho**	*Acorus calamus* L.	H	R	Cough, cold, pneumonia, bronchitis, asthma	Directly consumed	26	0.41
Amaranthaceae	**Bhiringi jhar**	*Alternanthera sessilis* (L.) R. Br. ex. DC	H	L	Fever, bleeding control, cough, gastritis, ulcer, antiseptic	Leaf boiled, powdered, or paste is used.	9	0.14
	Datiwaan	*Achyranthes aspera* L.	H	R	Urinary problems, hemicrania, respiratory problems, cholera	Root paste is mixed with water.	12	0.19
				S	Tooth problems	Rubbing the teeth to prevent from tooth decay.		
				L	Cuts, swelling, eczema, fever	Leaf juice is used in cuts, eczema and swelling and used orally for fever.		
	Lude kanda	*Amaranthus spinosus* L.	H	W	Body cooling, stomach problems, snake bites, diarrhea, dysentery, urinary problems	Whole plant juice or vegetable is consumed after cooking. Paste and juice is also used.	2	0.03
Amaryllidaceae	**Ban lasun**	*Allium wallichii* Kunth	H	Bu	Indigestion, kidney stone	Burnt bulb and consumed.	5	0.08
	Jammu	*Allium hypsistum* Stearn.	H	W	Cough, cold, fever, headache, indigestion, kidney problems	Hot soup is consumed.	6	0.10

Anacardiaceae	**Kanyu**	*Sclerocarya birrea* (A.Rich.) Hochst.	T	Se, L	Vitamin "C", common cold, cough, headache	Seed is directly consumed and leaf by making juice.	2	0.03
	Lapsi	*Choerospondias axillaris* (Roxb.)	T	Fr	Vitamin "C', uric acid, stomachache	Direct or by boiling in water.	11	0.17
Apiaceae	**Ghodtapre**	*Centella asiatica* (L.) Urb.	H	L	Fever, cough, indigestion, urinary problems, cholera, throat pain	Direct consumption or leaf boiled with hot water and consumed.	24	0.38
	Jwano	*Trachyspermum ammi* L. Sprague	H	L	Stomach problems, bronchitis, hair loss, cough, sore throat, parasitic worms	Small pieces of leaves are used.	4	0.06
				Se	Indigestion, lowers blood pressure, diarrhea, nasal blocking	Powdered or raw seed is consumed.		
Apocynaceae	**Aank**	*Calotropis gigantea (L.)* W.T. Aiton	Sh	B, R	Skin problems, respiratory problems, snake bite, joint pains	Bark and root paste is applied and juice is consumed.	5	0.08
				Lt	Fracture, joint pains, skin problems	Latex is directly applied on infected parts.		
	Barhamse phool	*Catharanthus roseus* (L.) G. Don	Sh	L	Body cooling, stomach problems, swelling	Leaf juice after boiling with water is consumed.	4	0.06
Araceae	**Karkalo**	*Colocasia esculenta* (L.) Schott.	H	L	Vitamin C, heart problems, promote healthy body weight, diarrhea, body cooling	Leaf is used as a vegetable.	17	0.27
				R	Lowers high blood pressure, sugar, helps to lose weight	Root is boiled, fried and consumed.		

Asparagaceae	**Kurilo**	*Asparagus racemosus* Willd.	H	Fr	Fast energy, maintain blood pressure	Used as a vegetable after cooking.	18	0.29
				R	Digestion, sugar, kidney problems, temperature maintenance, aphrodisiac	Root paste is mixed with water.		
Asteraceae	**Banmara**	*Eupatorium adenophorum* Spreng.	H	L	Blooding control, healing of wounds	Leaf paste is used.	21	0.33
	Bhringiraj	*Eclipta prostrata* Roxb.	H	W	Gastritis, bleeding control, cuts, headaches, memory power, snake bites	Paste is applied on desired portion.	1	0.02
	Dware phool	*Inula cappa* (Buch.-Ham. ex D.Don) DC**.**	Sh	L, Fr	Indigestion, uric acid, typhoid	Paste, powder or by boiling in water.	1	0.02
	Gandhe jhar	*Ageratum conyzoides* L.	H	L	Dehydration, indigestion	Leaf paste is used.	2	0.03
	Marauti	*Spilanthes paniculata* Wall.ex DC.	Sh	Se	Indigestion, headache, fever, toothache	Seed juice or powdered is consumed.	19	0.30
	Mulapate	*Elephantopus scaber* L.	H	W	Stomach problems, fever, gastritis, anthelmintic	Leaf is boiled, bark and root paste is consumed.	6	0.10
	Salaha jhar	*Crassocephalum crepioides* (Benth.) S.Moore.	H	L	Bleeding, sugar	Leaf paste is used in bleeding and consumed as vegetable for sugar control.	17	0.27
	Sayapatri	*Tagetes erecta* L.	H	Fl	Body pain, wounds, cuts, skin problems	Flower paste is applied on infected portion.	3	0.05
	Thakailo	*Cirsium verutum* (D.Don) Spreng.	H	R	Energy, body cooling, kidney problems	Root juice is consumed.	2	0.03
	Tihare phool/ Laxmi phool	*Inula cappa* DC.	H	L, Fr	Indigestion, uric acid, typhoid	Paste, powder or by boiling in water.	3	0.05
	Titepati	*Artemisia indica* Willd.	Sh	L	Skin problems, scabies	Leaf is soaked with water and used.	20	0.32

				R	Headache	Root paste is mixed with water		
Begoniaceae	**Magarkanche**	*Begonia picta* Sm.	H	L	Gastritis, headache	Leaf boiled or powdered and consumed.	8	0.12
				R	Peptic ulcer, conjunctivitis	Root paste is used.		
Berberidaceae	**Chutro**	*Berberis aristata* DC.	Sh	B	Wounds, skin problems, antiseptic, boils	Yellow part of bark is used as a paste.	16	0.25
				R	Piles, pinworms, jaundice, diarrhea, intestinal worms, inflammation	Root juice is consumed.		
Brassicaceae	**Chamsur**	*Cardamine scutata* Thunb.	H	Se	Back pain, indigestion	Consumption after soaking in water or in milk by cooking.	8	0.13
	Tori	*Brassica campestris* L.	H	Se	Fever, cough, cold, body pain	Seed oil is applied.	8	0.13
Cannabaceae	**Ganja**	*Cannabis sativa* L.	H	L	Skin problems, scabies, healing wounds, pain, inflammation, insomnia	Leaf powder, paste or juice is used.	19	0.30
				Se	Protein, blood purifier, anxiety and depression, muscular spasms, cold, abdominal disorders, concentration	Seeds can be consumed directly or seed powder is used.		
Capparaceae	**Sipligan**	*Crataeva unilocularis* Buch.-Ham.	T	L, W	Lowers down blood pressure, kidney problems, urinary problems	Consumed as a vegetable. Juice is consumed.	3	0.05
Caricaceae	**Mewa**	*Carica papaya* L.	T	Fr	Control blood pressure, body cooling, jaundice	Fruit is consumed.	16	0.25
Caryophyllaceae	**Abhijalo**	*Drymaria cordata (L.)* Willd. ex Schult.	H	W	Indigestion, gastritis, sinusitis	Plant and root juice is consumed.	7	0.11

Chenopodiaceae	**Bethe**	*Chenopodium album* L.	H	Se	Stomachache, gastritis, abdominal pain, retention of placenta	Seed paste is consumed.	2	0.03
				L	Dehydration, boost energy	Leaf paste is consumed.		
Combretaceae	**Barro**	*Terminalia belerica (Gaertn.)* Roxb.	T	B, Fr	Insomnia, cough, yellow fever, bronchitis, leucoderma, measles, tonsillitis, pharyngitis	Dried fruit and bark mixed with water.	18	0.28
	Harro	*Terminalia chebula* (Gaertn.) Retz.	T	Fr	Throat problems, cough, cold, gastritis, asthma, ulcer, blood purifier, bronchitis, fever, eye disease	Dried fruit mixed with water.	19	0.30
Convolvulaceae	**Aakase beli**	*Cuscuta reflexa* Roxb.	C	W	Jaundice, joint problems, fever, diarrhea, dyspepsia, headache	Whole plant part is mixed with water and directly used.	3	0.05
Crassulaceae	**Ajambari**	*Bryophyllum pinnatum* (Lam.) Oken	H	L	Cholera, earache, inflammation, boils	Leaf juice or paste is used (Leaf is heated first and then leaf juice is put into ear to cure earache).	13	0.21
Cucurbitaceae	**Ban karela**	*Momordica dioica*	Sh	Fr	Stomach problems, carminative, lower down high blood pressure	Used as a vegetable after cooking.	4	0.06
	Chichindo	*Trichosanthes anguina* L.	C	Fr	Constipation, fever, respiratory tract infection, regulates blood pressure, heart problems, body cooling	Fruit juice is consumed.	2	0.03
	Gol kankri	*Solena heterophylla*	C	R	Mastitis, joint pains, indigestion, stomachache	Root paste is used.	1	0.02
	Lauka	*Lagenaria siceraria* (Mol) Standl.	H	Fr, Se	Chronic cough, heart problems, lowers down high pressure	Consumed as juice.	19	0.30

Dioscoreaceae	**Ban Tarul**	*Dioscorea deltoidea* Wall. ex Griseb.	C	Tu	Piles, ulcers, syphilis, gonorrhea	Tuber can be directly consumed or by cooking.	7	0.11
	Tarul	*Dioscorea alata* L.	H	Tu	Enhance brain function, blood sugar control, better digestion, blood circulation, asthma	Tuber can be directly consumed or by cooking.	18	0.29
Dryopteridaceae	**Kali niuro**	*Tectraria coadunata* (J.Sm.) C.Chr.	F	L	Fever, stomach problems, gastritis, high protein	Used as a vegetable after cooking.	4	0.06
Ebenaceae	**Tiju**	*Diospyros malabarica* (Desr.) Kostel.	T	Fr	High protein	Directly consumed.	8	0.13
Elaeocarpaceae	**Rudrakshya**	*Elaeocarpus ganitrus* Roxb.	T	Se	Body cooling, indigestion, burns, stomach pain, liver problems, breathing problems, blood purifier, cough, stress, anxiety and depression	Soaked or boiled water with seed is consumed. Powdered seeds are also used.	13	0.21
				Fr, B, L	Epilepsy, headache, fever, mental disorder, skin problems	Fruit, barks and leaves powder are used.		
Ericaceae	**Angeri**	*Lyonia ovalifolia (Wall.)* Drude	Sh	L, B	Scabies, skin problems	Leaf and bark paste is used.	8	0.13
				R	Indigestion, joint fractures	Root paste or juice is used.		
Euphorbiaceae	**Bhiuamala**	*Phyllanthus amarus* Schum. and Thonn.	H	Se	Sugar, kidney problems, astringent, antiseptic, stomachache, febrifugal	Direct of seeds powder is used.	4	0.06
	Dudhe jhar	*Euphorbia hirta* L.	H	Lt	Blood stool, constipation, intestinal worms, eye problems	Accumulated latex from the bark is used.	3	0.05
	Khirro	*Sapium insigne* (Royle) Benth. ex Hook.	T	B	Swollen area	Bark and root paste, and latex is used	6	0.10

				R	Dysentery, diarrhea, astringent	directly on the desired portion.		
				Lt	Joint pains, fracture			
	Kumkum	*Mallotus philippinensis* Muell. Arg	H	L	Skin problems and infections	Leaf paste is used.	2	0.03
	Lalupate	*Euphorbia pulcherrima*	Sh	L	Wounds	Leaf paste is applied on wounds.	6	0.10
	Siudi	*Euphorbia royleana* Boiss.	Sh	S	Digestive disorders, dysentery, jaundice	Dried stem paste is consumed.	12	0.19
				Lt	Joint pain	Direct use.		
Fabaceae	**Gaujo**	*Millettia extensa*	C	W	Scabies, wounds, boil, skin problems, snake bites	Juice is applied on infected portion after pounding.	2	0.03
	Koiralo	*Bauhinia variegata* (L.) Benth	T	B	Dysentery, stomachache, diarrhea, piles, leprosy, ulcer, liver disorders	Bark juice is consumed.	7	0.11
	Lajjawati jhar	*Mimosa pudica* L.	H	W	Piles, sinusitis, dysentery, urogenital disorders	Plant paste is consumed.	8	0.13
	Rajbrikshya	*Cassia fistula* L.	T	L	Ulcers, rheumatism	Leaf juice is consumed.	6	0.10
				Fr	Abdominal pain, laxative, flatulence, leprosy, constipation, heart problems, fever	Fruit is consumed.		
	Simi	*Phaseolus vulgaris* L.	C	L	Face clearance	Leaf paste is used in face.	11	0.17

Gentianaceae	**Chiraita**	*Swertia chirayita* (Roxb. ex Fleming) H. Karst	H	R	Vomiting, cough, common cold, asthma, fever, weakness, hiccups	Pieces of roots, paste of leaves and stem after soaked with water is used.	16	0.25
				W	Intestinal worms, headache, eczema and pimples, scorpion bite, ulcers, kidney problems, pneumonia, diabetes, jaundice			
Lamiaceae	**Babari**	*Oscimum basilacum* Linn.	H	Se	Maintain body temperature, appetite, indigestion	Direct seed is consumed.	4	0.06
Lamiaceae	**Daijalo**	*Callicarpa macrophylla* Vahl.	H	R	Sepsis, fever, indigestion, boost energy, stomach problems	Root juice is consumed.	3	0.05
				B	Back pain	Bark paste is consumed.		
	Dhurseli	*Colebrookea oppositifolia* Sm.	Sh	L	Burns, snake bites, peptic ulcers	Leaf paste or juice is used.	6	0.10
	Pudina	*Mentha spicata* L.	H	L	Jaundice, ulcer, stomachache, headache, fever, throat pain, stimulant, peptic ulcer, appetizer, insomnia, boils, vomiting	Direct consumption of leaf.	23	0.37
	Rosemary	*Salvia rosmarinus*	Sh	L	Hair loss, memory power, indigestion, stomachache	Leaf powdered is used.	1	0.02
	Rudhilo	*Pogostemon benghalensis* (Brum. f.) Kuntze	Sh	L, Fr	Cough, common cold, used against Covid-19	Leaf and fruit juice or powder is consumed.	8	0.13
	Silam	*Perilla frutescens* var. frutescens	H	L, Se	Gastritis, ulcer, kidney problems, worms, neuro diseases	Powdered of leaf and seed is consumed.	6	0.10

	Tulasi	*Ocimum sanctum* L.	H	L	Pneumonia, cough, breathing problems, bronchitis, headache, allergies, tonsillitis, migraines, cold, sinusitis	Direct consumption, boiled with hot water and consumed.	28	0.44
Lauraceae	**Dalchini, Tejpatta**	*Cinnamomum tamala* (Buch.-Ham) T. Nees & Eberm	H	L, B	Dysentery, heart problems, rheumatism, indigestion, sore eyes, kidney pain, diarrhea, tuberculosis, cough, dehydration, boost energy	Leaf and bark powder is consumed.	11	0.17
				Se	Skin problems, stomachache	Seed paste is consumed.		
	Kapur	Camphora camphora (L.) H. Karst.	T	R	Stomach problems, energy, gastritis, kidney problems	Root juice is consumed.	12	0.19
	Siltimur	*Lindera neesiana* (Wall. ex Nees) Kurz	H	Se	Headache, stomachache, poisoning, gastritis, kidney problems, flatulence, fever	Seed juice or powdered is consumed.	8	0.13
Leguminosae	**Arari kanda**	*Acacia pennata (L.)* Willd.	Sh	R	Bleeding, gastritis, bone fracture	Root paste is mixed with water or directly consumed.	2	0.03
Liliaceae	**Ghiukumari**	*Aloe vera* (L.) Burm. F.	H	L	Face burn and skin problems, gastritis, body cooling, indigestion, sugar, constipation, purgative, healing wounds, dental plaque, internal inflammation	Leaf jel is applied on burnt area and skin. Leaf is directly consumed.	20	0.32
Lythraceae	**Dhairo**	*Woodfordia fruticosa*	Sh	Fl	Dysentery, headache, gastritis	Powder of flower is consumed.	4	0.06
Meliaceae	**Bakaino**	*Melia azedarach* L.	T	Se	Headache, fever, rheumatism	Seed paste is used.	9	0.14
				B	Urinary problems, piles, asthma, vomiting, skin	Bark paste or juice is used.		

					problems, mouth ulcer, blood purification			
	Neem	*Azadirachta indica* A. Juss.	T	L	Heart problems, fever, diabetes, leprosy, bloody nose, constipation, toothache, diarrhea,	Leaf juice is consumed.	15	0.24
				B	Stomach and intestinal ulcers, pain, skin problems, piles	Bark paste or juice is used.		
				Fl	Intestinal worms, urinary tract disorders, eye problems	Flower consumed as a soup.		
Menispermaceae	**Batulpate**	*Cissampelos pareira* L.	H	L	Constipation, fever, urinary problems, diarrhea, dysentery, maintain pressure, sepsis, menstrual disorder, gastritis	Leaf is consumed by making pieces. Also leaf powder or paste is consumed.	13	0.21
	Gurjo	*Tinospora cordifolia* (Thunb.) Miers	C	S, L	Immunity power, headache, leprosy, cough, fever, gonorrhea, diabetes, stress, people used during Covid-19 pandemic.	Boiled stem and leaf water is consumed.	17	0.27
				R	Asthma, gastritis	Small pieces of rhizome and root chewed or juice is consumed.		
				Rh	Tonsillitis, sprain, body cooling, diabete			
Moraceae	**Badhar**	*Artocarpus lakoocha* Roxb.	T	B	Dehydration, skin problems, gastritis	Liquid of bark and leaf is orally consumed.	2	0.03
				L	Stomachache, indigestion			
	Bar	*Ficus benghalensis* L.	T	L	Skin problems, chronic diarrhea, dysentery, energy,	Leaf boiled with water and juice is	3	0.05

					sugar, kidney problems, indigestion	consumed for diarrhea and dysentery. Leaf paste is used for skin problems Root paste is used.		
				B	Energy, kidney problems, sugar, indigestion, female sterility Leucorrhea, and diabetes	Bark powder is used.		
	Kauro	*Ficus lacor* Buch.-Ham.	T	Fr	Uric acid, ulcer, diarrhea, fever	Consumed raw or by cooking.	14	0.22
	Peepal	*Ficus religiosa* L.	T	L	Heart problems, constipation, menstrual bleeding	Leaf boiled with water and juice is used.	8	0.13
	Rukh katar	*Artocarpus heterophyllus* Lam.	T	L, B	Stomach and mouth ulcers, asthma, diabetes, gall stones, indigestion	Leaf and bark juice is consumed.	8	0.13
				Se	Diabetes, constipation, blood sugar level circulation, improve immunity power	Seed is roasted and eaten by removing its outer cover.		
				Fr	Heart problems, vitamin C, bone related disorders, thyroid gland metabolism, blood circulation, fever, lowers blood pressure	Fruit is directly consumed or as a vegetable after cooking.		
Myricaceae	**Kafal**	*Myrica esculenta* Buch.-Ham. ex D. Don	Sh	B	Diarrhea, cholera, dysentery, antiseptic, bleeding from teeth, toothache, wounds, joint pains, headache	Bark paste, powdered, chewed for relieving toothache.	5	0.08

				Fr	Bacterial dysentery, ulcer, nausea, piles, menstrual disorders, tapeworms	Raw fruits or juice is consumed.		
				R	Cough, asthma, cholera, bronchitis	Root juice is consumed.		
Myrtaceae	**Belauti**	*Psidium guajava* L.	T	L	Cough and cold	Leaf juice mixed with water and consumed.	15	0.24
				B	Gastritis, diarrhea	Bark paste is consumed.		
	Jamun	*Syzygium cumini* (L.) Skeels	T	Se, B, Fr	Headache, dysentery, sinusitis, cough, common cold, diarrhea	Direct consumption of seed, bark paste and fruit is used.	3	0.05
Nelumbonaceae	**Kamal phool**	*Nelumbo nucifera* Gaertn.	Sh	W	Jaundice, kidney problems, sugar, gastritis	Plant and root is chewed raw or by making juice.	8	0.13
Nephrolepidaceae	**Pani amala**	*Nephrolepis cordifolia* (L.) C. Presl.	F	Tu	Cold, cough, fever, antipyretic, headache, sugar, indigestion, jaundice, burning urination	Direct consumption.	9	0.14
Nyctaginaceae	**Seto malati**	*Mirabilis jalapa* L.	Sh	Tu	Menstrual bleeding, energy, diarrhea	Root paste is mixed with water and consumed.	4	0.06
Oleaceae	**Parijat**	*Nyctanthes arbor-tristis* L.	Sh	L, Fl	Fever, laxative, dandruffs, cough, diuretic, snake bite, typhoid, inflammation, diabetes	Leaf and flower powder mixed with water then consumed.	11	0.17
				Se	Skin problems, piles, fungal infections, scurvy	Seed powdered is used.		
Oxalidaceae	**Chariamilo**	*Oxalis corniculata* L.	H	R	Menstrual cycle regulation, blennorrhagia	Root juice is consumed.	3	0.05

				L	Dysentery, indigestion, diarrhea, headache, scurvy, jaundice, fever, sinusitis	Leaf boiled in water and juice is consumed. Leaf paste is used.		
Pandanaceae	**Kewara phool**	*Pandanus odorotissimus* Linn.	H	Tu, R	Sugar, body cooling, kidney problems, diabetes, joint pain	Dried tuber and root paste is consumed.	2	0.03
Pedaliaceae	**Til**	*Sesamum indicum*	H	Fr	Body cooling	Soaked with water and juice is consumed.	11	0.17
				S	Nerve problems, fever	Powdered of seed is consumed.		
Phyllanthaceae	**Amla**	*Phyllanthus emblica* L	T	R	Ulcer	Root paste is used.	16	0.25
				S	Jaundice, gonorrhea	Stem boiled and mixed with water.		
				Fr	Vitamin C, gastritis, cold, cough, control hair fall, diarrhea, inflammation, appetizer	Directly consumed and sometimes after burning.		
Poaceae	**Babiyo**	*Eulaliopsis binata*	H	R	Joint fractures	Root powder is used with water.	1	0.02
	Bamboo	*Bambusa vulgaris*	H	S	Energy, urinary problems, maintain temperature	Direct consumption of stem water.	3	0.05
	Dubo	*Cynodon dactylon* (L.) Pers.	H	W	Fever, cold, energy, lowers down pressure, gastritis, carminative, cough	Direct consumption, paste, or juice by boiling in water is consumed.	14	0.22
	Jamara	*Hordeum vulgare* L.	H	L	Cancer, typhoid, and jaundice	Leaf juice is consumed.	4	0.06
	Kagati ghas	*Cymbopogon citratus* L.	H	L	Vitamin C, cough, cold, Covid-19, stomach problems, indigestion	Leaf juice is mixed with tea and water then consumed.	3	0.05

	Kans	*Saccharum spontaneoum* L.	H	R	Sexual weakness, piles, stomachache, respiratory problems, burns, intestinal worms, swelling	Root paste or juice is used.	6	0.10
	Kush	*Desmostachya bipinnata* (L.) Stapf	H	L	Skin problems, diarrhea, heart problems	Leaf paste is used.	13	0.21
				R	Toothache, sugar and kidney problems, gastritis, urinary problems	Leaf and root juice is consumed.		
	Maize	*Zea mays* L.	H	Cs	Kidney and sugar problems, body cooling, menstrual cycle, fever	Corn silk boiled with water and boiled water is consumed.	11	0.17
	Siru	*Imperata cylindrical* (L.) P. Beauv.	H	L	Intestinal worms, diarrhea, urinary problems	Leaf and root juice is consumed.	3	0.05
				R	Tonic, antipyretic, piles			
Polygonaceae	**Ban pate**	*Rumex dentatus* L.	H	L	Bleeding, wounds	Leaf paste is used.	12	0.19
Ranunculaceae	**Bishjhar**	*Aconitum spicatum* (Bruhl) Stapf.	H	L	Sugar problems, indigestion, cold, sinusitis, sore throat, tonsillitis	Leaf powder or juice is consumed.	1	0.02
				R	Cuts and wounds, allergy, boils	Root paste is used.		
Rhamnaceae	**Bayar**	*Ziziphus mauritiana* Lam.	Sh	Fr	Measles, body cooling, stomach problems	Fruit paste is consumed.	8	0.13
				B	Stomach problems, bleeding	Bark powder and paste is consumed and used respectively.		
				L	Skin problems, hair fall	Leaf paste is used.		
				R	Joint fracture, pain	Root paste is used.		
Rosaceae	**Aiselu**	*Rubus ellipticus*	Sh	R	Back pain, gastritis	Root paste is used orally as a juice.	18	0.29

				Fr	Headache, indigestion	Fruit is directly consumed.		
Rubiaceae	**Jangali marathi**	*Rubia cordifolia* L.	H	Se	Blood purifier, stomach ulcers, indigestion, and gastritis	Seed paste is consumed.	9	0.14
	Pade Jhar	*Paederia foetida* L.	H	Fr	Gastritis, ulcer, stomach problems	Powdered form is used.	1	0.02
Rutaceae	**Aankhe timur**	*Zanthoxylum armatum* DC.	Sh	S	Gastritis, headache, stomachache, kidney problems	Seed juice or powder is consumed.	12	0.19
	Bel	*Aegle marmelos* (L.) Correa	T	Fr	Sexual disability, dysentery, blood stool, heat sickness, dyspepsia, constipation	Direct consumption	4	0.06
				L	Jaundice, typhoid, indigestion, heat sickness, common cold, fever	Leaf boiled with water and consumed.		
	Nibuwa	*Citrus limon* (L.) Osbeck	T	Fr	Vitamin C, stomachache, fever, chest pain, rheumatism, sore throat, kidney stones	Fruit juice is consumed.	14	0.22
Santalaceae	**Hadchur**	*Viscum album* L.	Sh	L, S, B	Immunity power, joint pains, fracture, headache, insomnia, wounds, back pain	Leaf and stem paste is used, and juice is consumed.	10	0.16
	Harchul	*Viscum articulatum*	T	Rh	Joint fracture	Powdered rhizome is consumed.	5	0.08
Sapotaceae	**Chiuri**	*Diploknema butyracea* (Roxb.) H.J.Lam	T	Se	Scabies, skin problems, antiseptics	Heating of seed and then rubbed into desired portion.	7	0.11
	Mahuwa	*Madhuca longifolia* (J.Konig ex L.) J.F. Macbr.	T	L	Diabetes, intestinal problems, healing wounds, skin problems, burns	Leaf paste or juice is used.	9	0.14
				B	Ulcer, fractures, bleeding, rheumatism	Bark paste or juice is used.		

Saxifragaceae	**Gujargano**	*Astilbe rivularis*	H	W	Indigestion, dyspepsia, urinary problems, cough, ulcer, dysentery, diarrhea, body ache	Juice is consumed.	6	0.10
	Pakhanbed	*Bergenia ciliata* (Haw.) Sternb.	H	B	Fast energy, menstrual disorder, joint fracture	Bark powder mixed with milk or other foods.	3	0.05
				Rh	Maternity problems, aphrodisiac, fever	Directly consumed.		
				L	Dog bite	Leaf paste is applied on bite portion.		
Selaginaceae	**Sanjeevani**	*Selaginella bryopteris* (L.)	H	L, Fl	Cuts and burns, stomach problems, respiratory problems, indigestion, cold, fever, flatulence, menstrual pain, tooth decay	Leaf, flowers paste or powder is used.	14	0.22
Solanaceae	**Dhaturo**	*Datura stramonium* L.	H	L	Joint pains, asthama, earache, epilepsy, hair growth	Dry leaves, paste or leaf juice is used.	8	0.13
				Se	Toothache, insomnia, impotency, body pain, bronchitis	Direct or seed juice is consumed.		
	Isamgol	*Nicandra physaloides* (L.) Gaertn.	H	Se	Headache, cold, cough, lowers body temperature	Direct seed is consumed.	2	0.03
Theaceae	**Chilaune**	*Schima wallichii* (DC.) Korth.	T	B, Se	Liver fluke, stomach problems, cuts and wounds, gonorrhea, skin problems, scabies	Bark powder is consumed. And charcoal of burned bark and seed is applied as paste for skin problems, scabies treatment.	6	0.10

Urticaceae	**Sisnu**	*Urtica dioica* L.	H	L	Lowers down high blood pressure, boost energy, temperature maintain, diarrhea, sugar and kidney problems, dehydration	Leaf juice is consumed.	17	0.27
				R	Toothache, fever, diuretic, rheumatism, stomach problems	Root powder or juice is consumed.		
Verbenaceae	**Simali**	*Vitex negundo* L.	Sh	L	Cough, common cold, headache, tonic, rheumatic infection	Leaf powder or juice is consumed.	7	0.11
Zingiberaceae	**Adhuwa**	*Zingiber officinale* Roscoe	Herb	Rh	Nausea and vomiting, joint pains, common cold, cough, indigestion, menstrual pain, cancer	Dried, powdered, or juice is consumed.	25	0.40
	Haledo	*Curcuma anguslifolia*	H	Tu	Skin problems, chicken pox, healing wounds, digestive disorders, urinary tract infections, menstruation regulation, common cold, cough	Dried powder or juice is consumed.	6	0.10
	Panisaro	*Cutleya spicata* (J. E. Smith) Baker	H	R, S	Body cooling, kidney problems, sugar, neuro diseases	Paste of root and stem is consumed.	6	0.10
Poaceae	**Tusa/ nyalo**	*Phyllostachys edulis*	Sh	S	Protein, stomach problems, gastritis	Stem paste or powdered is used.	9	0.14
	Ukhu	*Saccharum officinarum* L.	G	S	Jaundice, lowers body temperature	Direct or juice is consumed.	17	0.27
Poaceae	**Ushira**	*Vetiveria zizanioides*	H	R	Energy, kidney problems, gastritis, stomach problems	Root juice or powder is consumed.	3	0.05