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A STUDY OF ETHNOMEDICINAL PLANT DIVERSITY OF SACRED NATURAL SITES OF PANCHKOSHI PILGRIMAGE OF VARANASI, UTTAR PRADESH INDIA

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ABSTRACT: Introduction: Medicinal plants have always played a major role in primary health care system since time immemorial. Sacred natural sites is the prime place to encompass large medicinal plant with wide range of natural resources. It potentially conserves plant biodiversity with inclusion of sacred places and sacred water bodies. Apart from social and religious importance it, regulate air and water quality of environment. The purpose of this study was to document the floristic diversity and traditional approaches towards the ethnomedicinal plants of Sacred Natural Sites of Panchkoshi Pilgrimage of Varanasi district, Uttar Pradesh India. **Methods:** An ethnobotanical survey was conducted from May 2016 to April 2018. The information collected through open-ended and semi-structured questionnaire and data were analyzed through Informant consensus factor (ICF). **Results:** During the field study, 66 medicinal plant species belonging to 62 genera and 36 families used to heal different illnesses were recorded. Fabaceae has the dominant family with 8 plant species and Apocynaceae and Moraceae with 5 plant species followed by Malvaceae, Poaceae, Solanaceae, and Lamiaceae. With regard to life form, trees (46.97%) were the primary source of medicinal plants and leaves (32.22%) were the regularly utilized plant part. Moreover, the mode of preparation of plant remedies was decoction (25.77%). The highest ICF value was recorded for musculo-skeletal problem (0.96). **Conclusions:** This study helps in prioritizing to create awareness among the locals regarding the needs for conservation of plants and related indigenous knowledge. It would also expand and contribute green cover of expanding urbanized district of Varanasi.

INTRODUCTION: The worship of nature is a very ancient culture of Indian society. The conservation of nature and its resources is the key objective of this cultural philosophy in rural as well as urban region ¹. The indigenous community essentially associated with the various component of the natural environment and develop their nature-based traditional knowledge system for the treatment of various ailments across the globe ².

The local community also think themselves, as the link of these living and non-living feature of the environment in these mythical association ¹. These kinds of beliefs and practices empower the sacred sites and shrines to survive hundreds of years in several descendants of community, which deposited a large diversity of local biodiversity ^{3, 4, 5}.

The highly reputed international organization such as Man and Biosphere (MAB), United Nations Educational, Scientific and Cultural Organization (UNESCO) and World Heritage Convention (WHC) are previously illustrate the potential significance of sacred site and shrine in conservation and sustainable utilization of biodiversity. A sacred natural site is less disturb or

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virgin spots of natural forest, which are conserved by the local community through religious and cultural beliefs since the pre-Vedic period⁶. This spiritual faith has been protected the landscape towards the forces of anthropogenic activity over a long period of time at the global scale⁷. The sacred site is the natural laboratory of the ecosystem services, and religion is a strong tool for convincing people towards conservation of nature and continuous use of their future demands⁸. Besides these services, it also renders many cultural services such as spiritual, aesthetic, intrinsic and educational that provided the last shelter for threatening species⁹.

Sacred sites/shrines have large harbor of medicinally important plant species^{10, 11}. The herbal medicine provided the therapeutic requirement for >80% people of the world, which mostly cover the remote areas of developing countries¹². These biodiversity-rich landscapes are found in every village, whereas some important sites are shared by many villages as their own deity¹³. The sacred places generally related to the temple shrine which deliver cultural importance.

Sacred sites are well acknowledged for its social facilities such as places for public meeting as well as recreational and aesthetic services¹⁴. The importance of sacred places and shrine in the conservation of vegetation diversity are stated^{15, 16}. Conservation of biodiversity through shrine and temple spaces in the urban and suburban region is also reported^{17, 18}. Due to the conservation practices, the unique assemblage of the sacred and medicinal plant is found. Most of the study on medicinal plant of sacred sites in India is reported from Himalayan and south India region^{19, 9} while, few study were reported from central and eastern India^{20, 11}.

The present study was done on the ancient pilgrimage route of 'Panchkoshi Yatra' of the holy city of Varanasi in the State of Uttar Pradesh, India. It is one of the purest pilgrims of the Hindu religion. The main objective of this study to explore and document the ethno-medicinal importance of plant biodiversity of these sacred places.

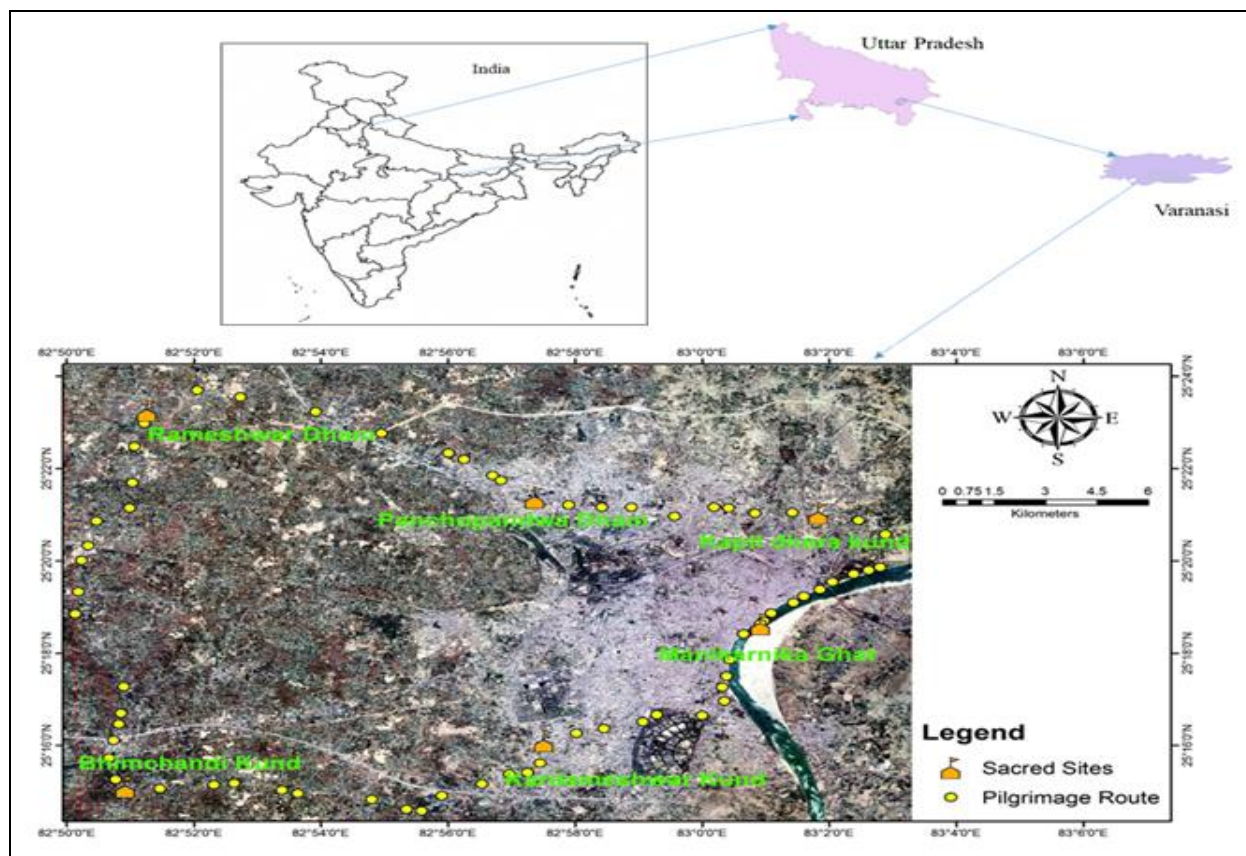


FIG. 1: GEOGRAPHICAL LOCATION OF STUDY AREA

Study Area: The “Panchkoshi Yatra” is an ancient pilgrimage path of Varanasi district, which is a combination of two Hindi word Panch (natural number five) and Koshi refer to krosch denoted the unite of distance determine equal to 2.2 miles (3.54 km). This pilgrimage covers a distance of 25 krosch (55.2 miles or 88.5 km). Pilgrimage passes five-night halt where they are staying during the journey namely Kardameshwar, Bhimchandi, Rameshwar, Shivpur, and Kapildhara with 44 dharmasalas (rest houses for pilgrims).

This five-night halt considered sacred and contained high depository of medicinal and sacred plant diversity. The path of this journey marks the outer boundary of the territorial zone of Varanasi and pronounced as Kashi mandala. The pilgrimage comprises two landscape, 75.5 km distance as road and 13 km distance as Ganga riverfront ghats. The path is passed from 108 sacred shrine and 84 Varanasi heritage Ganga river ghats. Its origin is considered previously the 16th century has delicate to Lord Shiva **Table 1**.

TABLE 1: LOCATION AND DEVOTED DEITY OF SNS/PLACES OF PANCHKOSHI PILGRIMAGE OF VARANASI

S. no.	Sacred place	Locality (Gramsabha)	Devoted deity	Area (ha)	Geographical coordination
1	Kardameshwar Kund (KM)	Kandawa	Kardmeshwar Mahadev	0.96	25°16'5.79"N; 82°57'30.39"E
2	Bhimchandi Kund (BC)	Bhimchandi	Bhimchandi Devi	1.92	25°15'6.52"N; 82°50'55.28"E
3	Rameshwar Dham (RD)	Rameshavar	Lord Shiva	0.80	25°23'15.67"N; 82°51'15.62"E
4	Panchopandwa Dham (PD)	Shivpur	Lord Shiva	0.64	25°21'22.46"N; 82°57'22.01"E
5	Kapildhara Kund (KD)	Kapildhara	Kapilmuni	0.32	25°20'25.24"N; 83°24'5.54"E



FIG. 2: (A) RITUAL PERFORMED AT KARDAMESHWAR KUND, (B) CONSERVATION OF SACRED TREE THROUGH WORSHIP, (C) AND (D) DEPOSITION OF HERB DATURA METEL AND LANTANA CAMARA ON SACRED NATURAL SITES

MATERIALS AND METHODS: A systematic and extensive survey for plant collection was performed for the inquiry of complete plant diversity which comprises herb, shrub, grass, and tree species of five sacred places of pilgrimage, including four seasons, from May 2016 to April 2018. On-field meetings and semi-structured questionnaires were used to collect required information⁸. Historical background and local management of sacred sites were discussed with the local people at the study site²¹. Information about the pilgrimage was asked by headmen of village, priests and knowledgeable persons of the village.

Related information of Panchkoshi Yatra was gathered by informants through formal and informal discussions and site observation. This information has been collected from 5 sacred places of Panchkoshi route of Varanasi district. The list of plants was prepared using the International Plant Names Index (<http://www.ipni.org>) and the plant list (<http://www.theplantlist.org>). The voucher specimens were placed in the laboratory herbarium of IESD, BHU.

Data Analysis: The data pertaining to ethnobotanical perspectives were classified into 9 broad categories of diseases which include gastrointestinal, skin problem, generalized, urogenital, musculo-skeletal, lung, circulatory, animal and other diseases.

Informant Consensus Factor (ICF): This is used to test the homogeneity of knowledge about the ethnomedicinal plants²².

The ICF was calculated as:

$$ICF = \frac{Nur - Nt}{Nur}$$

Nur = Number of use-reports for a particular use category; Nt = Number of taxa used for a particular use category by all informants.

ICF values are less if there is no information available about the particular plant and approach one when known information exists in the community or informants²³.

RESULT:

Medicinal Plant Diversity and their Ethnobotanical Uses: The five sacred natural sites cover a total of 4.64 ha of area with an average of 0.928 ha per sacred place. These places are excellent microhabitat of multilayer vegetation of herbs, shrubs, and trees. In the inventory of ethnomedicinal healing of plants in various ailments, 66 plant species under 62 genera and 36 families were reported. Fabaceae was the dominant family with 8 plant species and Apocynaceae and Moraceae dominated by 5 plant species each followed by Malvaceae, Poaceae, Solanaceae and Lamiaceae by 3 plant species. Out of the 66 plant species, 46.97% was the tree and the remaining 28.79% herbs and 12.12% species shrub followed by 4 species of grass and climber. In total use n = 66, 69.97% were wild, 22.72% cultivated and 7.58% were found as both wild and cultivated **Table 2**.

The plant species were used for treating various ailments such as digestive problems, stomach aches, colds and coughs, fever/headache, cuts and wounds, skin diseases, rheumatism, liver disorders, etc. The frequency of plant species to cure a particular disease was also estimated and a maximum of 31 plants were used to cure gastrointestinal problems (Diarrhea, dysentery, liver problems, intestinal-worms), 21 for skin related problems, 15 for lung problem (Cough and cold, asthma, tuberculosis), 13 for generalized diseases (fever/headache) 8 for urogenital problems, 7 for animal diseases (dog bite, scorpion/snake bite) 6 for other diseases, 5 for musculo-skeletal problem (Rheumatism, bone fracture) and 4 for circulatory problems (blood purifiers) **Table 2**.

TABLE 2: ETHNOBOTANICAL VALUE OF MEDICINAL PLANTS WITH THEIR USE REPORTS OF SACRED SITES

Botanical / Common name (V. specimen)	Local name	Family	Habit / Habitat	Medicinal virtue and use reports	Parts / preparation use
<i>Acacia nilotica</i> L. Wild. (SKP001)	Babul	Fabaceae	T/W	Gum, Cough & cold (8, LN) Dysentery, (6, GI)	Stem/Chewing, Flowers/Infusion, Leaves/ Juice & Bark/Decoction
<i>Achyranthes aspera</i> L. (SKP002)	Latjeera	Amaranthaceae	H/W	Tooth & Gum problem (10, GN)	Stem/chewed

<i>Aegle marmelos</i> L. (Corr.) (SKP003)	Bel	Rutaceae	T/W	Dysentery, cholera, indigestion, constipation (25, GI) intermittent fever (21, GN)	Root/decoction, Leaves/juice, Fruit/ juice
<i>Ageratum conyzoides</i> L. (SKP004)	Ajgandha	Asteraceae	H/W	Ring-worm (7, SK) Snake bite (6, Ann)	Leaves/Paste
<i>Aloe barbadensis</i> Mill. (SKP005)	Ghritkumari	Asphodelaceae	H/W	Skin problem (19, SK)	Leaves/Paste
<i>Alstonia scholaris</i> R. Br. (SKP006)	Saptarni	Apocynaceae	T/W	Diarrhea, stomach- ache (21, GI)	Bark/Powder
<i>Albizia lebbek</i> L. Benth. Willd. (SKP007)	Siris	Fabaceae	T/W	Asthma (18, LN) impotency (5, UR)	Bark/decoction & powder
<i>Annona squamosa</i> L. (SKP008)	Sharifa	Annonaceae	T/C	Diarrhea, dysentery, purgative (37, GI)	Seed/Decoction Fruit/Oral
<i>Anthocephalus cadamba</i> (Roxb.) (SKP009)	Kadamb	Rubiaceae	T/W	Constipation, diarrhea, (10, GI) urogenital, (5, UR) skin diseases (3, SK)	Bark/decoction, Fruit/juice
<i>Allium sativum</i> L. (SKP010)	Lahsun	Liliaceae	H/C	Lung congestion, bronchitis, cough, high blood pressure (10, LN) apatite loss (6, GI)	Bulb/orally Oil/massage
<i>Artocarpus lakoocha</i> (Roxb.) (SKP011)	Barhar	Moraceae	T/W	Liver problem, (10, GI) Skin problem, (4, SK)	Fruit pulp/orally, Bark/paste,
<i>Azadirachta indica</i> A. Juss. (SKP012)	Neem	Meliaceae	T/W	Intestinal worms, (30, GI) high fever, (10, GN) wound healing, skin problem, (6, SK)	Bark /decoction flower/decoction, paste
<i>Asparagus racemosus</i> Willd. (SKP013)	Satavari	Asparagaceae	Cl/W	Impotency, gynecological disorder (10, UR) tuberculosis (6, LN) epilepsy (4, OT)	Whole plant/ juice
<i>Bombaxceiba</i> L. (SKP014)	Semal	Malvaceae	T/W	Diarrhea & Dysentery, (10, GI) impotency (20, UR)	Bark/Decoction, Root/Powder
<i>Bambusa bambos</i> Druce. (SKP015)	Bans	Poaceae	G/W	Piles, constipation (15, GI) placenta release, Ethno-veterinary (11, Ann)	Root/decoction, Leaves/feeds to cattle orally
<i>Bauhinia variegata</i> L. (SKP016)	Kachnar	Fabaceae	T/W	Dyspepsia (18, GI)	Root/decoction
<i>Butea monosperma</i> (Lam.) TAUB. (SKP017)	Palash	Fabaceae	T/W	Intestinal worms (11, GI) skin disease (6, SK) night blindness (5, OT)	Bark/infusion, Flower/paste
<i>Cannabis sativa</i> L. (SKP018)	Bhang	Cannabaceae	H/W	Diarrhea (6, GI) ethnoveterinary use (4, Ann)	Leaves/decoction Flower/decoction
<i>Calotropis procera</i> (Willd.) Ex W. Ait. (SKP019)	Madar	Asclepiadaceae	S/W	Swelling, pain (14, GN)	Leaves/poultice, Flower/powder
<i>Capsicum annuum</i> L. (SKP020)	Mirch	Solanaceae	H/C	Joint pain (12, GN) skin disease (8, SK) dog bite (4, Ann)	Fruit/powder
<i>Citrus limon</i> (L.) Burm. F. (SKP021)	Nimbu	Rutaceae	T/C	Diarrhea, dysentery, jaundice, flatulence, vomiting (28, GI)	Fruit/juice
<i>Cassia fistula</i> L. (SKP022)	Amaltas	Fabaceae	T/W	Scorpion bite, (17, Ann)	Seed/Paste
<i>Cassia tora</i> L. (SKP023)	Chakvad	Fabaceae	H/W	Night-blindness (8, OT)	Leaves/Infusion
<i>Catharanthus roseus</i> (L.) G.DON (SKP024)	Sadabahar	Apocynaceae	H/C	Dressing on abscess, (16, SK)	Leaves/paste & Decoction

<i>Curcuma longa</i> L. (SKP025)	Haldi	Zingiberaceae	H/C	Skin disease (18, SK) bone fracture, rheumatic pain, (10, MS) flatulence (4, GI) cold (6, LN) intermittent fever (2, GN) ethno-veterinary (4, Ann)	Rhizome/decoction, paste, powder, infusion
<i>Cynodon dactylon</i> (L.) PERS. (SKP026)	Duba	Poaceae	G/W	Bleeding, anemia (16, GN)	Leaves/juice, Whole plant/infusion
<i>Cyperus rotundus</i> L. (SKP027)	Mutha	Cyperaceae	G/W	Diarrhea, dysentery (14, GI)	Whole plant/juice Root/powder
<i>Dalbergia sissoo</i> Roxb. (SKP028)	Shisham	Fabaceae	T/W	Toothache, Gum healings (47, GN)	Leaves/paste Stem/chewed
<i>Datura metel</i> L. (SKP029)	Dhatura	Solanaceae	H/W	Piles, diarrhea and dysentery, (8, GI) ethnoveterinary use (6, Ann)	Leaves/decoction, Root/paste
<i>Evolvulus alsinoides</i> L. (SKP030)	Shankhpushpi	Convolvulaceae	H/W	Skin problem (7, SK) reproductive disease (9, UR)	Leaves/juice
<i>Ficus bengalensis</i> L. (SKP031)	Bargad	Moraceae	T/W	Pains, ulcers, skin burn, (8, SK) rheumatic pain (9, MS)	Root/decoction, Bark/decoction
<i>Ficus infectoria</i> Roxb. (SKP032)	Pakar	Moraceae	T/W	Diarrhea, dysentery, (18, GI) nervous disorder (10, OT)	Leaves/decoction
<i>Ficus racemosa</i> L. (SKP033)	Gular	Moraceae	T/W	Bronchitis, (32, LN) Urinary trouble (16, UR)	Leaves/juice, Fruit/Orally
<i>Ficus religiosa</i> L. (SKP034)	Peepal	Moraceae	T/W	Gonorrhea, (45, UR) constipation, asthma (15, LN)	Leaves/infusion, Bark/infusion
<i>Hibiscus rosasinensis</i> L. (SKP035)	Gurhal	Malvaceae	S/C	Liver disorder, (6,GI) high blood pressure, (8, LN)	Flower/decoction, paste
<i>Hordeum vulgare</i> L. (SKP036)	Jau	Poaceae	G/C	Cough, asthma (6, LN) urinary (7, UR)	Seed/decoction
<i>Hyptis suaveolens</i> Poit. (SKP037)	Bantulsi	Lamiaceae	H/W	Foot decaying (49, SK)	Leaves/paste
<i>Ipomoea batatas</i> L. Lam. (SKP038)	Shakarkand	Convolvulaceae	Cl/C	Skin (6, SK) gastro- intestinal (2, GI) fever (2, GN)	Leaves/paste
<i>Lantana camara</i> L. var. aculeate (SKP039)	Phoolwari	Verbenaceae	S/W	Ring-worm, (25, SK) Stomach-ache (12, GI)	Leaves/Paste, Root/Powder
<i>Lawsonia inermis</i> L. (SKP040)	Mehandi	Lythraceae	S/(W/C)	Skin disease, burning sensation, hair fall (15, SK) diarrhea, dysentery (9, GI)	Leaves/paste
<i>Madhuca indica</i> GMEL. (SKP041)	Mahua	Sapotaceae	T/W	Throat massage, (12, LN) Pyaria (10, GN)	Fruit/Oil, Twig/Brushing
<i>Melia azedarach</i> L. (SKP042)	Bakain	Meliaceae	T/W	Dysentery (14, GI)	Leaves/juice
<i>Mangifera indica</i> L. (SKP043)	Aam	Anacardiaceae	T/W	Constipation, (22, GI) urinary problem (26, UR)	Leaves /juice ripped fruits/orally
<i>Moringa oleifera</i> Lam. (SKP044)	Sahjan	Moringaceae	T/C	Constipation, liver & Spleen disorder, (20, GI)	Fruits/Orally Bark/Paste
<i>Musa paradisiaca</i> L. (SKP045)	Kela	Musaceae	T/C	Diarrhea, (16,GI) anemia (14, GN)	Fruits/decoction
<i>Nerium indicum</i> Mill. (SKP046)	Kaner	Apocynaceae	S/W	Inflammation, skin irritation, (32, SK) cough, bronchitis (25,	Flowers/paste

<i>Nyctanthes arbor-tristis</i> L. (SKP047)	Harshingar	Oleaceae	T/W	LN) Fever and pains (17, GN)	Leaves/decoction
<i>Ocimum tenuiflorum</i> L. (SKP048)	Tulsi	Lamiaceae	H/(W/C)	Cold, cough, (16, LN) skin diseases (8, SK)	Leaf/juice
<i>Phyllanthus embilica</i> L. (SKP049)	Aonla	Euphorbiaceae	T/W	Liver tonic, diarrhea, dysentery, anti-oxidant (24, GI)	Fruits/powder, oil, jam, pickles
<i>Piper betle</i> L. (SKP050)	Pan	Piperaceae	Cl/C	Appetite loss, stomach pain (12, GI)	Leaves/juice
<i>Polyalthia longifolia</i> (Sonn.) Thwaites (SKP051)	Ashok	Annonaceae	T/W	Inflammation, fever, (6, GN) skin disease, (6, SK)	Bark/ powder
<i>Prosopis cineraria</i> L. Druce (Shami) (SKP052)	Shami	Fabaceae	T/W	Rheumatism (42, MS)	Leaves/infusion
<i>Ricinus communis</i> L. (SKP053)	Arand	Euphorbiaceae	S/W	Bone dislocation, (8, MS) Otagia (4, OT)	Leaves/soaked in mustard oil, Leaves/juice as an eardrop
<i>Sesamum indicum</i> L. (Til) (SPK054)	Til	Pedaliaceae	H/C	Diarrhea, dysentery (8, GI) cough (5, LN) reduce cholesterol, immune enhancer (11, CI)	Seeds/ powder, oil
<i>Sida acuta</i> Burm. F. (SKP055)	Bariyari	Malvaceae	H/W	Muskular pain (53, MS)	Root/Decoction
<i>Solanum nigrum</i> L. (SKP056)	Makoy	Solanaceae	H/W	Skin problem (30, SK)	Leaves/Decoction
<i>Syzygium cumini</i> L. Skeels (SKP057)	Jamun	Myrtaceae	T/W	Stomach problem (20, GI)	Bark/Powder
<i>Tabernaemontana divaricata</i> L. Roem. & Schult. (SKP058)	Tengari	Apocynaceae	S/(W/C)	Piles (23, GI)	Shoot/chewed
<i>Tagetes erecta</i> L. (SPK059)	Genda	Asteraceae	H/(W/C)	Eye diseases (20, OT)	Leaves/juice
<i>Terminalia arjuna</i> (Roxb.) Wight & Arn. (SPK060)	Arjun	Combretaceae	T/W	Cardiac tonic (13, CI)	Bark/decoction
<i>Tectona grandis</i> L.F. (SKP061)	Sagaun	Lamiaceae	T/W	Skin diseases (41, SK)	Bark/Paste
<i>Thevetia peruviana</i> (Pers.) Merr. (SKP062)	PiliKaner	Apocynaceae	S/W	Heart stimulant (10, CI)	Milky Latex
<i>Tinospora cordifolia</i> (Willd.) Hook F. and Th. (SKP063)	Giloy	Menispermaceae	Cl/W	Healing wounds (33, SK)	Stem/Paste
<i>Trapa bispinosa</i> Roxb. (SPK064)	Singhara	Trapaceae	H/C	Diarrhea (9, GI) skin disease, inflammation (7, SK)	Fruits/powder
<i>Ziziphus mauritiana</i> Lam. (SKP065)	Ber	Rhamnaceae	T/(W/C)	Diarrhea and dysentery (8, GI) blood purifier (7, CI)	Root/decoction, Fruit/blood purifier orally
<i>Zingiber officinale</i> ROSC. (SKP066)	Adarak	Zingiberaceae	H/C	Cough & Cold (18, LN)	Rhizome/roasted orally

Habit-T= Tree, H= Herb, S= Shrub, Cl= Climber, G= Grass; Habitat-W= Wild, C= Cultivated, W/C= Wild/Cultivated; Disease-SK= Skin problem, GI= Gastrointestinal problem, LN= Lung problems, MS= Muskulo-skeletal disorder, GN= Generalized diseases, Anm= Animal diseases, UR= Urogenital problems, CI= Circulatory problem, OU= other use

Plant Parts Use and Preparations: Leaves were the most frequently used plant parts (32.22%) followed by bark (16.66%), fruits (15.55%), root (11.12%), flower (6.66%), stem (5.55%), seed (4.44%), whole plant and rhizome (2.22% each) and bulb, twig and latex (1.12% each) respectively **Fig. 3a.**

The common preparation methods were grouped into 10 categories. The plant remedies were prepared by decoction (25.77%) followed by paste (19.58%), juice (16.49%), powder (12.37%), infusion (8.24%), oral (7.21%), chewing and oil (4.13% each) and poultice and brushing (1.04% each) respectively **Fig. 3b.**

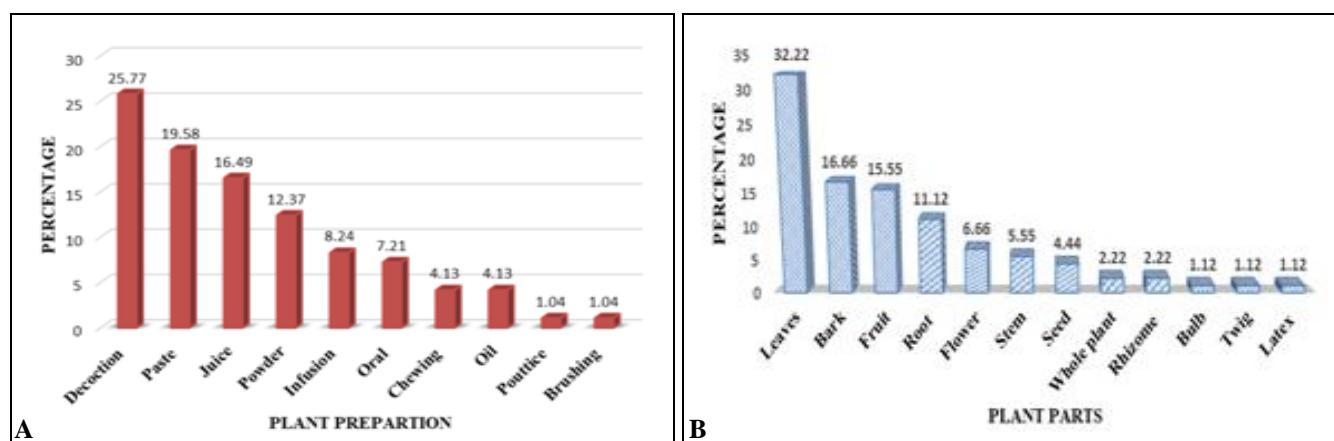


FIG. 3: (A) MODES OF PREPARATION (B) VARIOUS PLANT PARTS USED

Informant Consensus of Factor (ICF) Level for Therapeutic Purposes: Medicinal plants showing high ICF values were supposed to be potent in treating a particular disease. In the study area, gastro-intestinal, skin problems, lung problems, generalized diseases, urogenital and musculo-skeletal problems were very common. The maximum number of use reports were 456 and 31

plants for gastro-intestinal, 348 use reports with 21 plants for skin problems, 195 use reports with 15 plants for lung problems, 181 use reports with 13 plants were reported for generalized diseases. While 138 and 122 use reports with 8 and 5 plants for urogenital and musculo-skeletal problems respectively were reported in **Table 3**.

TABLE 3: INFORMANT CONSENSUS FACTOR FOR DISEASE CATEGORIES

Disease categories	Number of use reports (Nur)	% of use reports	Number of taxa (Nt)	% of taxa	Informant consensus factor (ICF)
Skin problems (SK)	348	21.96	21	31.81	0.94
Gastrointestinal problems (GI)	456	28.78	31	46.96	0.93
Lung problems (LN)	195	12.31	15	22.72	0.92
Muskulo-skeletal disorder (MS)	122	7.70	5	7.57	0.96
Generalized diseases (GN)	181	11.42	13	19.69	0.93
Animal diseases (Anm)	52	3.28	7	10.60	0.88
Urogenital problems (UR)	138	8.71	8	12.12	0.94
Other use (OU)	51	3.21	6	9.09	0.90
Circulatory problems (CI)	41	2.58	4	6.06	0.92
Total	1584				

DISCUSSION: Indian civilization had nurtured with a piece of rich traditional knowledge and ethnomedicinal plant wealth that surfaced harboring one of the key producers of the medicinal resources of the world. Despite the expansion of medical services most of the marginal community of peri-urban and rural region are still depends on the medicinal plant for treatment of several health problems⁸. Like several regions of India, the local communities of Varanasi district nurtured rich socio-cultural diversities with unique native plant knowledge.

Medicinal Plant Diversity, Life Forms, Parts used and Preparation: The maximum number of plant species was reported to grow in the wild form. The local people of the study area collect

wild medicinal plants from their surrounding environment to make medicinal preparation for curative purposes. The similar result was reported by Güneş *et al.*,²⁴ in Chinglai valley and Jan *et al.*²⁵

It was observed that trees as the dominant life forms among the reported medicinal plants. It is supported by our results²⁶. It is because of the rich tree diversity in the study area and their abundant use in medicinal virtues.

Leaves were used for treating several diseases solely or in combined with other plant parts. This result is also reported by other scholars^{27, 28, 29, 30, 31}. Leaves are easily available and frequently includes in most of the preparations compared to

fruits, roots, flowers and relatively easy to grind compared to other plant parts³².

The decoction is the common method of preparation that imitates similar outcomes in other studies^{33, 34, 35, 36}.

Informant Consensus Factor (ICF): The ICF of ethnomedicinal knowledge ranged from 0.96 to 0.88 with an average ICF value of 0.92. Medicinal plants showing high ICF value was musculo-skeletal problem indicated peoples were familiar with bone-setting properties of plants (ICF of 0.96). It is also supported by Upadhya³⁷. Plants used to treat the skin and urogenital problems showed the ICF of 0.94 each, indicating skin problem is very common in the study area and people are also familiar with the treatment of the urogenital problem by using some medicinal plants such as *Asparagus recemosus* and *Bombaxceiba*. This report is also supported by Rahman and Gulshana³⁸ and Jain³⁹. The prevalence of gastrointestinal and generalized problem (ICF 0.93 each) in the study area may be due to the low availability of hygienic food and drinking water. This report is also supported by Amjad⁴⁰ and Dey and De⁴¹. Plants used to treat the lung and circulatory problem (ICF of 0.92 each) indicated the people of the study area are quite knowledgeable about treating cold and cough problems and blood purification⁴².

Similar to the sacred grove of remote areas, SNS of urban and peri-urban also conserve by religious and cultural motivation and attitude of local community. This sagacity of beliefs in regional divinities, promotes sustainable natural resource utilization as well as strengthens local culture with close linkage of environment. In due course of rapid urbanization and unplanned development of Varanasi city disturb the sacredness of these places^{43, 44}. The most area of Varanasi is prone to invasion of invasive species due to large construction in peri-urban region⁴⁵. It leads threat to native vegetation system with combination of air, water, and solid waste pollution. Modernization of society also receding the attitude of younger generation towards these places. Whereas government and local institutions develop these sacred places by cementation of most open land towards nature conservation. This cementation harms the growth of old plantation and destroys the

germination of new seedlings. Analyzing the healing importance of medicinal plant and anthropogenic intimidation. There is need for future research to assess the threats and conservation of these cultural heritage of Varanasi city. Because it represents most of the medicinal plant diversity as well as green cover of the city.

CONCLUSION: Varanasi is known for the colorful culture, religion pilgrimage places, and devotees. This inventory reveals that sacred natural site of the urban and peri-urban areas has great depositories of medicinally important plant species. Majority of species of these places used in primary healthcare treatment of local and rural populations. Sacred sites have rich biodiversity with tradition and culture which is not seen anywhere in this most urbanized district. It also provided the natural in-situ conservation model to conserve the medicinal plant diversity. The investigation of medicinal properties of plant creates a new vista to explore the medicinal knowledge of local people for drug discovery. Conservation of plant species of sacred natural sites in need of hour not only for the medicinal healthcare of local community but also for various ecosystem services.

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