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Documentation of Indigenous Traditional Knowledge on Some Medicinal Plants in Saharanpur District of Uttar Pradesh, India

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Abstract The present ethnomedicinal exploration study presents the indigenous use of certain medicinal plants by the local people of the Saharanpur district in the Uttar Pradesh state of India. The survey was conducted during 2020-2022 in order to access information about traditional knowledge on medicinal plants of the study area and their conservation. Saharanpur is situated in the foothills of Shiwalik that constitute the outer Himalaya. This region forms the northern most part of Ganga-Yamuna Doab. The climate of the area is tropical due to the proximity of the Himalayan region. This area represents a great diversity of medicinal plants and contains deep indigenous traditional knowledge. The objective of the study was to record and document this traditional knowledge of medicinal plants for the welfare of future generations. The methods employed for ethnomedicinal data collection included semi-structured interviews, field observation, preference ranking and direct-matrix ranking. For the collection of ethnomedicinal information, the knowledgeable persons, plant collectors and ayurvedic medical practitioners of the study area were interacted. The conventional medicines obtained from these medicinal plants has been proved highly beneficial in maintaining good health and accordingly ethnic community still depends upon their indigenous knowledge to a greater extent to heal their ailments. A total of 82 plant species were collected, of which 66 plants of medicinal importance were documented with their botanical name, local name, family, habit and parts used. These 66 plant species belong to 59 genera and 35 families. The most dominant families recorded were Amaranthaceae followed by Asteraceae, Malvaceae, Lamiaceae and Moraceae. Herbs were the most common growth form followed by trees, shrubs and climbers. Among the different plant parts, the leaves were most commonly used to treat various diseases followed by root, seed, whole plant, fruit, stem, bark, flower and wood. It was observed that these plants are widely used for the treatment of various ailments such as asthma, kidney stone, rheumatism, fever, urinary infections, syphilis, leucorrhoea, tuberculosis, eye infections, leprosy and skin disorders by the local inhabitants of the study area. This investigation will be of great importance to conserve the heritable knowledge in the field of herbal treatment.

Keywords Ethnomedicinal, Ailments, Ethnic Community, Traditional Knowledge, Saharanpur, Uttar Pradesh

1.Introduction

Plants have been a great source of traditional medicine for the time immemorial. In a country like India, the

traditionally used medication system plays a significant role in health care of rural people. Earlier studies have shown that in India, traditional healers use 2500 species of medicinal plants and 100 species of plants are regularly used as a source of medicine [1]. With the advent of modern or allopathic medicine, traditional medicinal practices are declined to some extent. However, in recent years, the scenario has been changed and both doctors and patients acknowledged the importance of traditional medicines. According to WHO, 80% of the populations from developing countries rely almost exclusively on traditional medicine [2]. India is represented as one of the major mega biodiversity centres in the world. The plants possess a high concentration of bioactive secondary compounds that represent potential for the discovery of new drugs. At present, about 65% population in India depend on the traditional or herbal system of medicine [3]. During last few decades, an increase has been recorded in medicinal plant studies and their traditional uses as medicine all over the world [4]. Documentation of indigenous traditional knowledge through ethno-botanical studies is very essential for the conservation and sustainable utilization of medicinal plant resources. Ethno-botanical survey has been proved as one of the most important methods for the discovery of new drugs [5]. Thus, in order to revitalize the traditional herbal medicines, present study is an attempt to document the traditional knowledge on medicinal plants of Saharanpur district of the state of Uttar Pradesh and also their utilization in strengthening existing health care system. Saharanpur district is highly rich in medicinal plant resources. The present study was therefore, undertaken with the objective to document the indigenous traditional knowledge about medicinal plants found in the district. To fulfill this purpose, an ethnomedicinal survey of different rural areas was conducted to collect and document the information through local people.

2. Materials and Methods

2.1. Study Site

The area selected for ethnomedicinal studies (Figure 1) falls under the district Saharanpur of U.P., India. Saharanpur is the most northern of the districts of state Uttar Pradesh, bordering the states of Haryana, Uttarakhand and Himachal Pradesh. It lies between 29^{o} 34' and 30^{o} 34' North latitude and 77^{o} 7' and 87^{o} 12' East longitude. The area of the district is 3869 sq. km. In the North of the district lies district Dehradun of Uttarakhand state and districts Yamuna Nagar and Karnal of Haryana state in the west, district Muzaffarnagar and Shamli in the south and district Haridwar of Uttarakhand state in the east. Saharanpur district is situated in the foothills of Shiwalik that constitute the outer Himalaya. This region forms the northernmost part of Ganga-Yamuna Doab. The district is broadly divided into the Shiwalik, Bhabar, Tarai, Khadar and the plain. Hilly tract of the Shiwalik ranges along the northern border is stretching from west to east directions. The southern part of the district consists of plain and constitutes a major part of Saharanpur district. The region is composed of alluvial soil. Yamuna is the major river of the district. The climate is characterized by general dryness, a bracing cold season and a hot summer. May and June are the hottest months with maximum temperature of around 39ºC and the daily minimum of around 25ºC.

2.2. Collection of Data

For the collection of plants, extensive survey of the study area was carried out from September 2020 to April 2022. Regular trips were made in different seasons in various parts of the area to collect maximum number of different medicinally important flowering plants. In order to get first-hand ethnomedicinal information regarding the use of different plants as medicine, interviews were organized with rural people of the study area. The interview was mainly based on the type of diseases, their diagnosis, methodology of treatment, vernacular name of medicinal plants used, source of plant collection (wild or cultivated), name of plant parts used, methodology of drug preparation and its application. A total of 25 people aged between 36 and 74 were interviewed, who were familiar with deep traditional knowledge about medicinal plants, of which 20% were females and 80% were males. Further, the males reported a higher number of remedies than females.

The methods employed for the collection of ethnobotanical data included semi-structured interviews [6], field observations, preference ranking and direct-matrix ranking [7]. All possible efforts were made for the collection of plants in their flowering and fruiting stages. Plant specimens were photographed at site for describing basic details. All the data of collected specimens were maintained in field note book. Collected plant samples were further processed following the standard method of collection, preservation and maintenance of specimens in the herbarium [8]. Identification of the collected specimens was done with the help of pertinent floras [9-13] as well as with the help of taxonomic experts.

On the basis of plant part used and the disease cured, the ethnomedicinal information was documented. The medicinal plants were arranged alphabetically with their botanical names, local names, family, habit, plant parts used and ethnomedicinal significance (Table 1).

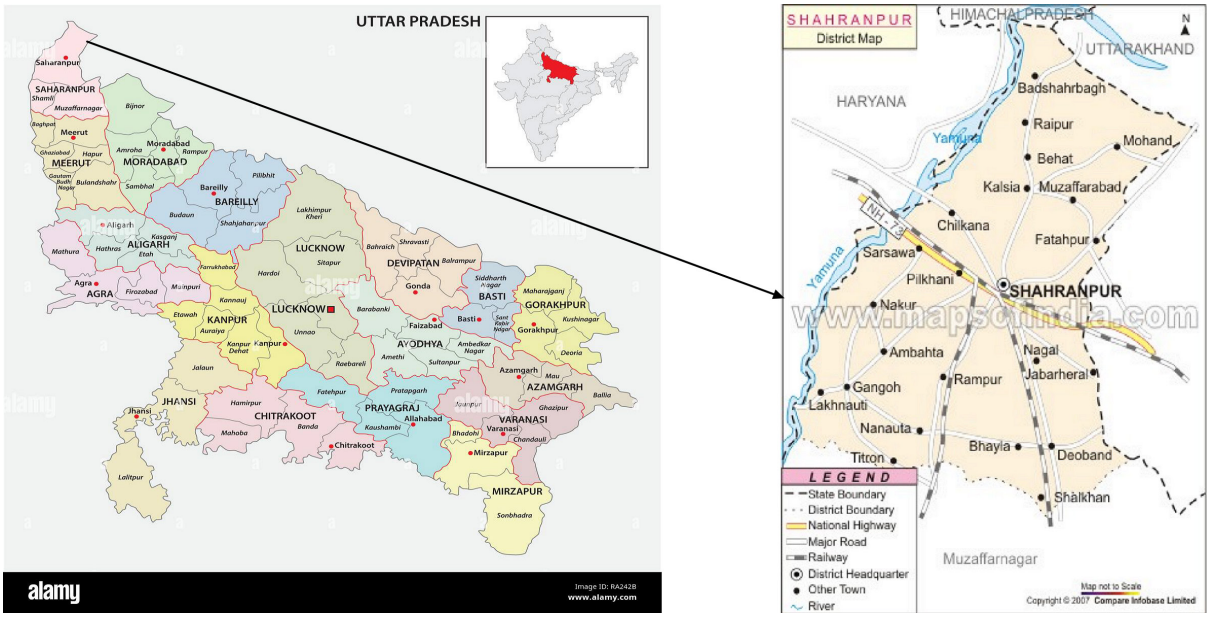

Figure 1. Map of the Study Area (Saharanpur District of Uttar Pradesh)

3. Result

The ethnomedicinal data collected during the survey is depicted in Table 1. A total of 82 plant specimens were collected from various locations during the survey, of which 66 plant species of medicinal importance were documented with their botanical name, local name, family, habit, parts used and medicinal significance. It can be concluded from the report of survey that local inhabitants of the Saharanpur district frequently use these 66 medicinal plant species belonging to 59 genera and 35 angiospermic families as a source of traditional medicine to heal their ailments.

The dominant families of study area are presented in Figure 2. The most dominant families in terms of the number of medicinal plant species used by local inhabitants of the study area are Amaranthaceae (7), Asteraceae (6) and Malvaceae (5). It is reported that more than 55 different diseases were cured by medicinal plants in the area, but the maximum use was for diarrhoea, dysentery, wounds, fever, rheumatism, cough and cold, kidney stone, skin infections, leucorrhoea, diabetes, snake bite, leucoderma and gonorrhea.

The habit wise analysis of plant species (Figure 3) of the study area revealed that herbs constitute the highest percentage, followed by trees, shrubs and climbers. The different plant parts used for various ethnomedicinal purposes are shown in Figure 4, and it is concluded that leaves were the most widely used plant part followed by roots, seeds, whole plant, fruits, stem, bark, flower and wood. Present data indicates that one or two species of medicinal plants are mostly used in drug preparation but not more than three species. The highest number of remedies was utilized for the treatment of stomach disorders (like diarrhoea, dysentery) followed by respiratory problems, skin infections, cough and cold, kidney stone, diabetes, rheumatism and wound healing.

Table 1. List of Plant Species with Ethnomedicinal Uses

Name of Species	Local Name	Family	Habit	Parts Used	Ethnomedicinal Uses
Abutilon indicum(L.) Sweet	Kanghi	Malvaceae	Shrub	Leaf, Root	Leaf juice is used to cure kidney stones and bleeding piles. Root is useful for the treatment of dental problems.
Achyranthes aspera L.	Chirchita, Latjeera	Amaranthaceae	Herb	Leaf, Root	Decoction of leaves is used in cough and abdominal pain. Root decoction mixed with garlic and ajwain is used to cure asthma.
Aegle marmelos(L.) Correa.	BelPatar,Bael	Rutaceae	Tree	Leaf, Root	Root paste is used as an antidote against scorpion bite. Juice of ripe fruit is used in gastro-intestinal problems. Leaf juice is used to treat jaundice, asthma, fever and diabetes.
Aerva javanica (Burm. *f.*) Juss. &Schult.	Bhuari	Amaranthaceae	Herb	Root, Seed	Roots are given in the treatment of headache and jaundice. Seeds are useful in rheumatism. Decoction of plant is given in burning micturition.
Ageratum conyzoides L.	Neela Phool	Asteraceae	Herb	Leaf	Leaf decoction is used for the cure of dysentery, rheumatism and fever. Leaf extract is used as an antidote against snake bite.
Alstonia scholaris (L.) R. Br.	Saptparni	Apocynaceae	Tree	Bark	Bark is used as blood purifier. Decoction of bark is useful in fever to reduce body temperature.
Alternanthera sessilis (L.) R. Br. *ex* DC.	Garundi	Amaranthaceae	Herb	Leaf	Leaf poultice is used for boils. Decoction of plant is given to nursing mother to increase the milk.
Amaranthus viridis L.	Kantili Cholai	Amaranthaceae	Herb	Whole Plant	Plant is considered as a good source of iron and act as appetizer. Whole plant is given to cure kidney stone.
Anisomeles indica (L.) Kuntze	Kala Bhangra	Lamiaceae	Herb	Root, Seed	Root paste is applied on rheumatism. Seed oil is used to cure uterine infections. Plant ash mixed with coconut oil is applied to remove dandruff.
Argemone Mexicana L.	Peeli Kateli	Papaveraceae	Herb	Seed	Seeds are used as an antidote against snake bite. Latex is used to treat eye infection and jaundice. Seed oil is used to treat cutaneous infections.
Barleria prionitis L.	Vajradanti	Acanthaceae	Shrub	Leaf	Raw leaves are chewed to get relief in tooth ache. Leaf ash is used with honey for cough. Leaves paste is useful in boils and cracked heel.
Bauhinia purpurea L.	Kachnar	Caesalpiniaceae	Tree	Bark, Wood	Bark is used in the treatment of diarrhoea. Woody twigs are burnt and used as tooth powder to get relief in tooth ache.
Boerhaviachinensis(L.) Rottb.	Punarnava	Nyctaginaceae	Herb	Root	Root paste is applied on swellings, boils and rheumatism. Decoction of root is given in bronchitis, sore throat and general debility.
Boerhavia diffusa L.	Punarnava	Nyctaginaceae	Herb	Root, Leaf	Root paste is used for easy delivery and to cure boils and dropsy. Leaf juice is used in jaundice.

Table 1. Continued

Calotropis gigantean (L.) Dryand. R. Br.	SafedAak, Madar	Asclepiadaceae	Shrub	Leaf, Root	Milky juice is applied or ring worm, eczema and swelling. Fresh root twigs are used as tooth brush in toothache. Leaves are used in treatment of paralysis. Root bark is used in elephantiasis.
Calotropis procera (Ait.) Dryand. R. Br.	Aak, Madar	Asclepiadaceae	Shrub	Whole Plant	Almost all plant parts are used for various purposes. Leaves are used in dysentery. Stem fibres are used to prepare rope and cords. Root and latex are used for treatment of asthma.
Carica papaya L.	Papeeta	Caricaceae	Tree	Leaf, Fruit	Leaves are used in dengue fever. Ripe fruits are used for good digestion.
Celosia argentea L.	Makhmali	Amaranthaceae	Herb	Flower, Seed	Flowers are used for the treatment of diarrhoea. Seeds are used to cure painful micturition and dysentery.
Centella asiatica L.	Brahmi Buti	Apiaceae	Herb	Leaf	Powdered leaves with cow's milk are given to improve memory. Leaf decoction is given in treatment of leprosy. Leaves are also used to overcome fatigue, stress and mental confusion.
Cleome viscosa L.	Hulhul	Capparidaceae	Herb	Seed	Seeds in the form of poultice are applied on painful joints. Seeds are used as carminative and anthelmintic.
Cordia dichotoma G.Forst.	Lisora	Boraginaceae	Tree	Leaf, Bark	Bark is employed for cough and chest diseases. Leaf juice and honey are given in foot and mouth disease of cattles.
Cuscuta reflexa Roxb.	Amarbel	Convolvulaceae	Herb	Stem	It is utilized in treatment of liver related diseases. Decoction of stem is employed in constipation and flatulence. Stem paste is given with curd to cure diarrhoea.
Dalbergia sissoo DC.	Shisham	Papilionaceae	Tree	Leaf, Wood	Fresh leaves and dried bark are used in bleeding piles. Leaf decoction is given in gonorrhea. Wood is useful in leprosy, boils and eruptions
Datura metel L.	Kala Dhatura	Solanaceae	Herb	Leaf, Seed	Leaves are used as narcotic and anti-spasmodic.Seeds are said to be smoked in asthma. Purified seeds are used for the treatment of jaundice and anemia.
Delonix regia (Hook.) Raf.	GulMohar	Caesalpiniaceae	Tree	Seed, Bark	The seeds are carminative, and also used to purify the blood. Decoction of bark is useful in fever and diarrhoea.
Digera muricata (L.) Mart.	Koundra	Amaranthaceae	Herb	Seed, Flower	Seeds and flowers are used for the treatment of urinary discharges.
Echinops echinatus Roxb.	Untkanta	Asteraceae	Shrub	Root	Roots in powdered form are used to destroy lice. Root paste is employed in case of snake bite. Decoction of root is used impotency and sexual debility.
Eclipta prostrate L.	Bhringraj	Asteraceae	Herb	Whole Plant	Plant juice is applied in fever, jaundice, anemia and diabetes. Whole plant is used to treat skin problems and urinary tract infections. Leaf paste mixed with coconut oil is used to check hair loss.

Table 1. Continued

Evolvulus alsinoides L.	Phooli	Convolvulaceae	Herb	Leaf	Leaves are used to prepare tonics and as medicine for fever. Also used in treatment of syphilis, diarrhoea, bronchitis and asthma.
Ficus benghalensis L.	Bargad, Bar	Moraceae	Tree	Whole Plant	Root paste is applied in leucoderma and ringworm. Fruits are employed in indigestion, sexual debility, piles and general debility. Stem decoction is used for piles and exudation of puss. Bark infusion is used as a tonic and in treatment of dysentery and diabetes.
Ficus racemosa L.	Gular	Moraceae	Tree	Fruit, Root	Unripe fruits are used in jaundice and diarrhoea. Root juice is applied in case of mumps and other glandular swellings.
Ficus religiosa L.	Peepal	Moraceae	Tree	Whole Plant	Twigs are used as tooth brushes. Unripe fruits are useful in premature ejaculation and general debility. Stem bark is used in skin problems, throat and urinary infections.
Fumaria indica (Haussk.) Sabnis	Papra	Fumariaceae	Herb	Whole Plant	The decoction is used as a blood purifier. Also used against fever and as anthelmentic.
Gomphrena celosioides Mart.	Kasia	Amaranthaceae	Herb	Whole Plant	Plant is used for treatment of malaria, jaundice, cough and diarrhoea.
*Heliotropim strigosum*Willd.	Safed Bhangra	Boraginaceae	Herb	Leaf	Plant juice is applied to sore eyes. Leaf juice is useful in treatment of boils, wounds and ulcers.
Ipomoea cairica (L.)Sweet	Morning Glory	Convolvulaceae	Climber	Leaf	The plant is useful in treatment of cough, asthma and tuberculosis. Leaf paste is useful in skin diseases.
Lawsonia inermis L.	Mehandi	Lythraceae	Shrub	Leaf	Leaf paste is applied over skin to cure burns. Gargle with decoction of leaves is good medicine for gum disease.
Leucas cephalotes (Roth) Spreng.	Gubha	Lamiaceae	Herb	Root, Flower	Used as laxative and anthelmintic. Root juice is given in rheumatism. Flower juice is given in cough, cold and jaundice.
Mimosa pudica L.	Lajwanti, Chhuimui	Mimosaceae	Shrub	Leaf, Root	Plant powder is used as good medicine for asthma. Plant paste is applied on fistula and piles. Root decoction is used in urinary disorders. Leaf juice is helpful in glandular swellings.
Mirabilis jalapa L.	Gulabas	Nyctaginaceae	Shrub	Leaf	Paste of leaves is applied on boils, wounds and swellings.
Momordica dioica Roxb. exWilld.	Jungli Karela	Cucurbitaceae	Climber	Leaf, Root	Roasted roots are used in treatment of piles and urinary troubles. Root paste is applied on scorpion sting. Leaf juice is used for ear ache.
Moringa oleifera Lam.	Sahjan	Moringaceae	Tree	Root, Leaf	Root decoction is given to treat asthma and bronchitis. Leaf juice along with honey is dropped into eyes in conjunctivitis.
Morus alba L.	Shahtoot	Moraceae	Tree	Fruit, Leaf	Leaf paste is useful for healing of wounds. Fruits are eaten and also used for sore throat, dyspepsia and melancholia.

Table 1. Continued

Murraya koenigii (L.) Spreng.	Kari-patta, Mithi Neem	Rutaceae	Shrub	Leaf, Root	Leaves are good appetizer and used as flavoring agent. Root juice is applied for kidney related troubles. Leaves infusion is used for the treatment of diarrhoea, dysentery and fever.
Ocimum americanum L.	Tulsi, Krishna Tulsi	Lamiaceae	Herb	Leaf, Seed	The leaves mixed with the tea are used in fever. Seed decoction in potash water is used as coolant in fever. Seed powder is used in case of leucoderma and other skin diseases.
Ocimum basilicum L.	Tulsi,	Lamiaceae	Herb	Leaf	Leaf along with honey is used as decoction to cure cold, cough and fever.
Oxalis corniculata L.	Khatti- Booti	Oxalidaceae	Herb	Leaf	The leaves are good source of vitamin C. The leaves are chewed raw due to its sore taste. Juice of its leaves acts as antidote against Datura poisoning. Leaf juice is used to treat piles, anemia and skin problems.
Parthenium hysterophorus L.	Gajarghas	Asteraceae	Herb	Root	Decoction of roots is used as tonic. Root decoction is also used in treatment of dysentery and skin diseases.
Pedalium murex L.	Vilayti Gokhru	Pedaliaceae	Herb	Leaf	Sap of fresh leaves with water is used to treat gonorrhoea and dysuria. It is also used in calculi and burning micturition.
Physalis minima L.	Rasbhari	Solanaceae	Herb	Leaf, Fruit	Used as diuretic and purgative. Leaf juice is used in case of ear ache. Fruits are also used in colic complaints.
Polygonum plebeium R. Br.	Machechi	Polygonaceae	Herb	Whole Plant	Plant decoction is given in pneumonia and bowel complaints. Plant ash mixed with oil is applied on eczema, wounds and ulcers.
Portulaca oleracea L.	Luni	Portulacaceae	Herb	Leaf	Leaves are used in the treatment of kidney, bladder and spleen disorders. It is also used to treat mouth ulcer.
Putranjiva roxburghii Wall.	Putranjiva	Euphorbiaceae	Tree	Fruit, Seed	Fruits are used for treatment of fever, cold and rheumatism. Seeds are believed to be conception-promoting. It is also used against vaginal infection and urino-genital disorders.
Ranunculus sceleratus L.	Jaldhania	Ranunculaceae	Herb	Leaf, Stem, Seed	Leaf juice is applied on eczema and ringworm. Stem juice is used in asthma, pneumonia and rheumatism. Seeds are used against stomach pain and kidney problems.
Senna occidentalis L.	Kasondhi	Caesalpiniaceae	Herb	Leaf, Stem, Seed	Seeds are used for treatment of cough and whooping cough. Roasted seeds mixed with coffee are given for strength. Stem, leaf and seed decoction is used as a purgative.
Sida acuta (Burm. f.) Bross.	Baraira	Malvaceae	Shrub	Leaf, Root	Boiled leaves are used against elephantiasis. Roots are used for nervous and urinary disorders.
Sida cordata(Burm. f.) Boiss.	Baharbu, Adiabel	Malvaceae	Herb	Leaf, Root, Fruit	Fruit decoction is used in sexual debility. Decoction of root is given in leucorrhoea and gonorrhea. Crushed leaves are applied on cuts.

Table 1. Continued

Sida cordifolia L.	Kharenti	Malvaceae	Herb	Root	Roots infusion is given in nervous and urinary disorders. Root powder is given with milk in leucorrhoea and frequent micturition.
Sonchus asper (L.) Hill	Dudhi	Asteraceae	Herb	Root, Stem	Root paste is a good medicine for jaundice. Paste of herb is used for treating wounds and boils.
Stellaria media (L.) Vill.	Godal	Caryolhyllaceae	Herb	Whole Plant	Paste of the plant is applied on cuts and wounds. It also helps to treat constipation. Paste of plant mixed with *plaster of paris* is applied on the broken bones for healing.
Terminalia arjuna (Roxb. *ex* DC.) Wt. &Arn.	Arjun	Combretaceae	Tree	Bark, Leaf, Fruit	The bark is considered to be a tonic for heart. Decoction of leaves is useful in diabetes. Fruit is useful in controlling high blood pressure. Twigs are used as tooth brush in dental disorders.
Tinospora cordifolia (Willd.) Miers.	Giloy, Guduchi	Menispermaceae	Climber	Whole Plant	Leaf decoction is given in the treatment of gout. Fruit is used to treat jaundice and rheumatism. Dried stem is used in polyurea and skin diseases. Stem juice is used in general debility, fever and urinary problems.
Trachyspermum ammi (L.) Sprague.	Ajwain	Apiaceae	Herb	Fruit, Root	Fruits are useful in flatulence, indigestion, colic and bronchitis, and also used as spice. Roots are used as carminative, diuretic and febrifuge.
Tribulus terrestris L.	Gokhru	Zygophyllaceae	Herb	Fruit, Root, Leaf	Fruit decoction is used for the treatment of impotency. Raw leaves are used to treat stone problems. Mixture of fruits and root is used for leucorrhoea and urinary problems.
Tridax procumbens L.	Sadahari	Asteraceae	Herb	Leaf	It is used to treat dental problems. Leaf juice is used to get relief from ear ache. Leaves are used for treatment of dysentery.
Urena lobata L.	Bachita	Malvaceae	Shrub	Stem, Root	The decoction of stem and roots is used to get relief from flatulence.
Verbascum chinensis (L.) Santapau	Gadar-Tamakhu	Scrophulariaceae	Herb	Leaf	Plant juice is used as febrifuge and applied in skin eruptions. Leaf juice is useful in treatment of diarrhoea.
Withania somnifera (L.) Dunal*in*DC.	Ashwa gandha	Solanaceae	Shrub	Root	Powdered roots are employed to improve sexual power. Root powder is used to get relief from inflammation. Root paste is applied to cure ulcers, fever, cough and rheumatism.

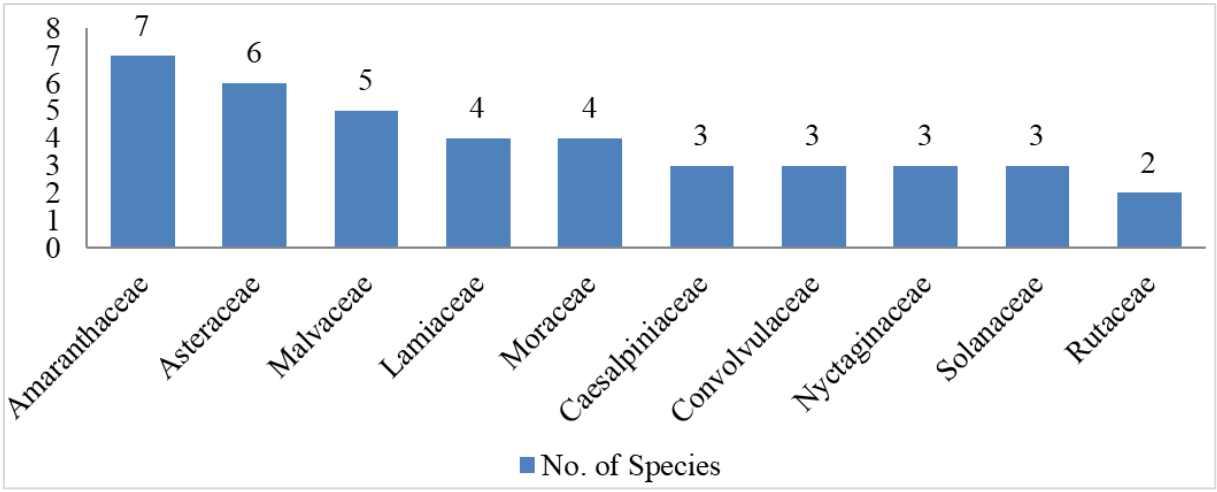

Figure 2. Dominant families with number of species

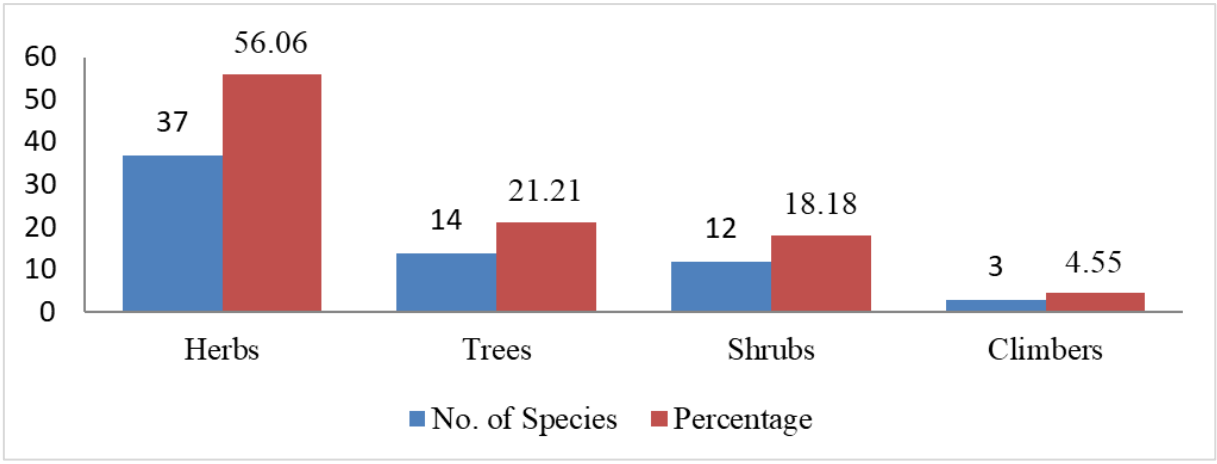

Figure 3. Classification of plant species according to their habit

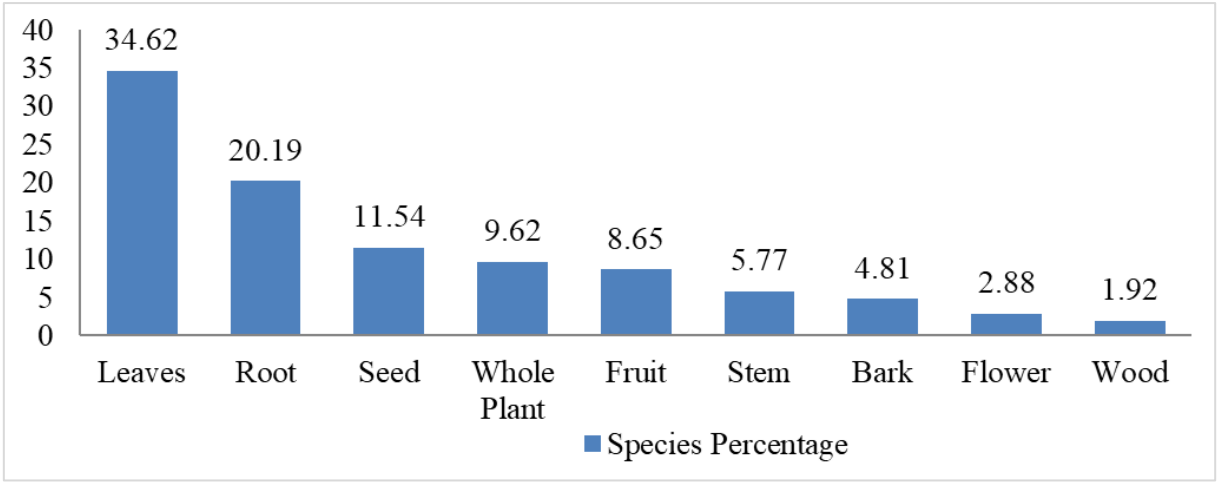

Figure 4. Classification on the basis of plant parts used

4. Discussion

The occurrence of a large number of medicinally important plant species clearly indicates that this area has a great diversity of medicinal plants and contains deep indigenous traditional knowledge. It is also concluded from the study that local inhabitants of the area largely depend on the wild medicinal plants to treat their diseases

[14]. Due to the lack of standard health facilities in the rural parts of the district, the people are largely dependent on the traditional medication system. This dependency would negatively affect the diversity of these medicinal plants and some of the plants would become threatened in the years to come. Thus, the study area experiences a decline of medicinal wealth due to over exploitation of these plants by local inhabitants.

In the present study, an attempt was made to document the traditional knowledge of medicinal plants present with the local people of the study area to make it available for future generations. The ethno medicinal study reveals the therapeutic potential of 66 plant species belonging to 59 genera and 35 families, in which Amaranthaceae and Asteraceae families predominate. It is clear from the study that various parts of the medicinal plant species are used as medicine (namely stem, root, leaves, whole plant, flowers, fruits, seeds, bark and wood) but the most frequently used plant part was leaves (used in 36 species), followed by root (21 species), seed (12 species), whole plant (10 species), fruit (9 species), stem (6 species), bark (5 species), flower (3 species) and wood (2 species).

The rural people of Saharanpur district mostly use these medicinal plants as these are easily available and highly effective against various human ailments such as rheumatism, urinary infections, asthma, kidney stone, snake bites, diarrhoea, leucorrhoea, syphilis, fever, eye infections, leprosy, skin disorders and tuberculosis. The reported plants include both wild and cultivated ones. Documentation of traditional knowledge about medicinal plants is highly important for enhancement of the existing understanding of indigenous knowledge system.

Several ethnomedicinal studies were done for the documentation of the medicinal species used by the local inhabitants contiguous in the different parts for health care. The present study has also been compared with important published literature [15-20]. Recent studies revealed that many of these valuable medicinal plants are under threat and disappearing at very fast rate due to various factors such as deforestation, industrialization and over exploitation of plant species in the study area. Therefore, there is an urgent need of community based conservation systems for the conservation of indigenous medicinal knowledge and biodiversity in this area including the wealth of medicinal plants.

5. Conclusion

The present study would be of immense importance to preserve the indigenous traditional knowledge of medicinal plants used by the rural people in treatment of various health problems. These plants have tremendous potential for the preparation of various pharmaceutical products of commercial importance. But due to the lack of awareness and proper documentation, this wealth is going to decrease day by day. Therefore, identification and conservation of medicinal plants are an essential requirement of today for maintaining our traditional knowledge of medicinal plants. Therapeutic potential and applications of the medicinal plant species discussed in the present article open new vistas for the future researchers to accelerate deep pharmacological investigations about the plants in order to validate the efficacy of indigenous herbal medicine. Thus, it is expected that this investigation will be of great significance to preserve the heritable knowledge in the field of herbal treatment especially in rural areas.

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