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ASSESSMENT OF DIVERSITY OF MEDICINAL PLANTS FROM, MEERUT, WESTERN REGION, UTTAR PRADESH, INDIA

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ABSTRACT:
In India traditional knowledge till today majorly remains undocumented, most of this important information were passed through generations in the form of folklores, hence it is very important to tap this ethno-botanical knowledge of people and document the useful plants of that particular region, it can prove to be an essential tool that might help in the understanding of human-environment association

Keeping this in view an extensive survey work was carried out during July 2017- August 2019 in Meerut district of Uttar Pradesh state of India, for the medicinal plant resources and its importance association VAM of tree plants of western Uttar Pradesh .Present paper advised to local peoples (especially of rural areas), for protection of these plants and secure their life for better survival
About 95 plant species belonging to 37 families and 67 genera were recorded and a list of plant species along with their part/s used and their effective control in different ailments was prepared.
All the selected tree species are commercially and ecologically multipurpose use such as medicinal, dye, timber, wildlife conservation, ornamental, phytoremediation and avenue trees. The present study emphasizes the need multipurpose tree species and their conservation and sustenance for future generation and wildlife.
Keywords: Tree, survey, Medicinal plants; Meerut District; Uttar Pradesh.

INTRODUCTION

Plants are one of the most important sources of medicines. The relevance of plants as medicines dates back to prehistoric period. The medicinal plants are extensively utilized throughout the world basically by two means of health care system management which are traditional and modern. The World Health Organization (WHO) reported that as many as 80% of the world population depend upon traditional medicines for their primary health care (Singh *et al*., 2010; Dubey, 2004 , Gautam R P,2015)
Medicinal plants are still widely used for health care by tribal. As the new generation is diverted towards the allopathic medicines, ethnobotanical knowledge of important medicinal plants remained restricted to the old people only (Amjad*et al.,* 2014). The United Nations through WHO programs sought to promote and develop traditional medicine in the health care systems to integrate traditional medicine and modern medicine and to promote manpower development and research in traditional medicine (Adachukwu and Yusuf, 2014).

According to data released by the WHO, ethnomedicine has maintained its popularity in all regions of the developing world and its use is rapidly expanding in the industrialized countries. For instance in China, traditional herbal preparations account for 30-50% of the total medicinal consumption. In Ghana, Nigeria and Zambia, the first line of the treatment for 60% of the children with malaria is the use of herbal medicine (Bhat*et al.,* 2012).
However, information is lacking on the status India is one of the 17 mega biodiversity countries in the world. It has 45000 plant species, out of which 15000-20000 plants have medicinal values (Arti*et al.,* 2014).
India has 10 of the world's biodiversity wealth which is distributed across 16 agro climatic zones (Raut*et al*., 2010). Plants have been used by tribal and local people for cure of various diseases. As

most of the diseases of modern society are style diseases and the use of medicinal plants can overcome such problems. Moreover several difficult diseases have problems related with vitality, diabetes; memory loss could be cured effectively by the use of herbal medicine which generally is not possible by the allopathic medicines (Agarwal*et al.,* 2013). Importance of medicinal plants in traditional health care practices which provide clues to new areas of research and in biodiversity conservation is now well known. However, information on the uses of plants for medicine is lacking from many hilly and tribal areas of Kashmir Himalayas (Jeelani*et al*., 2013). The use of plants for medicinal purposes and human sustenance has been in practice in India since Vedic times. The earliest mention of the medicinal use of the plants is found in Rig-Veda (1500-400 B.C) and Atharveda (1500 BC). In India, about 17000 plant species out of which 7500 are known for medicinal uses. In India, Ammal initiated the work on ethno botany while working in BSI (Mahesh Kumar et al.,2009; Zishan*et al*.,2016)

In view of the innate Indian strengths, which include divers ecosystems for growth of meditional plants, farming capacity, strong manufacturing sector, the medicinal plants sector can provide a huge export opportunity after fulfilling domestic needs (Kumar *et al*.,2013). Nature has bestowed our country with an enormous wealth of medicinal plants,therefore, India has often been refered to as the "medicinal garden of the world" .Medicinal plants are being looked upon not only as a soruce of health care but also as a source of income (Sachan*et al*.,2015 and Om Prakash*et al*,2017)

Meerut is having prestigious space in the Indian history. The first revolution for freedom of India was started here itself in 1857 by great son of this soil MangalPandey. Capital of Kauravs&Pandavas was at Hastinapur. Meerut is 65 km away from the National Capital Territory. Fertile land of Meerut for growing many species of tree. The total forest area in the Meerut district is 21,314 hectare. Trees are an important part of life. Since the beginning, trees have furnished us with two of life's essentials, food and oxygen. Trees contribute to their environment by purifier's air quality, climate amelioration, Water purifiers, conserving water, preserving soil, and supporting wildlife and distribution of many suspected rare species of trees, and the true figure is likely to be much higher.

Trees are a major group of the plants having much height, woody stem and comparatively long life spawn than Herbs and shrubs. These are showing variation in their presence according to the climatic condition as well as their genetic effect. These are also marked for their high degree of seed production useful for their maximum dispersal and long term existence in nature and for slow growth rate (Patel D. K.,2015)

Trees are of exceptional ecological importance, providing habitat for a wide range of other organisms. Many of these trees also benefit people, and are associated with social, economic or cultural values. Consequently, their continued decline or loss can have a major impact on human well being. In the present study, a total of selected 101 species of trees were collected along with the documentation of significant information regarding their scientific names, common names, families and used for different purposes. It is, therefore, very necessary to document the useful multipurpose and conserve it for future generations and biodiversity conservation.(Rai ,2016)

OBJECTIVES

1) Extensive survey to record the valuable knowledge of the local people about the medicinal plants.
2) To find out how the local people use the plants for treating various diseases or ailments.
3) To enlist the various medicinal plants growing in the area this is associated with mycorhizoids

MATERIALS AND METHODS

STUDY SITE

DESCRIPTION OF STUDY AREA

The study was conducted in Meerut District during March 2017 to November 2019. The survey was done months March, May and September 2012, 2013, 2015 on the all area of Meerut. Study area, Meerut district is located between 77º. 00' and 78º.00' longitude East and 28º.54' & 29º.15' latitude North (Fig .1). The temperature of the district is varies from 4º C in winter to 48º C in summer. The rainy session normally starts in the end of June month. The average rainfall is about 686 mm. The survey involved field work and multipurpose use of tree plants species information collected from local peoples and various research papers. Tree species were photo-documented by Sony Digital camera modal no. DSC HX1, during the study period. Species identity, were confirmed with the help of the books by R.K. Chakraverty and S. K. Jain (1984), and Y. Rai (2015).

Meerut district comprises 12 Block of 3 Tehsil. The survey of folk medicinal plants was conducted for two consecutive year in village of 12 block in Meerut district

The study involved field work and interviews, medicinal flora information collected from the elderly villager people

DATA COLLECTION

In the present studies, district Meerut of Uttar Pradesh, was divided in four block regions i.e. Hastinapur, Mawana and Machra and Saroorpurkhurd regions, were selected for the study of medicinal plants of this region in different habitats such as forest land, agricultural land, crop lands, orchard lands, near the road side, near the houses or buildings, anywhere, the medicinal plants were located and identified keeping in mind all the geographical conditions such as soil type, availability of water, sources of water, temperature conditions, topography. The present study is based on the extensive survey work during July 2017- August 2019. Identification of the collected (non-identified plant species) small medicinal plants was done at the laboratory by observing their morphological characters with experts, and if any large plant is not identified during the time of survey, then a clear photograph was taken and consulted with the experts and identified. During the survey work, local as well as regional names of the medicinal plants were also recorded side-by-side, discussing with the local peoples, especially belonging to rural area (Chakravertiand Jain, 1984, Krishen, *et al*. 2006, Prasanna, *et al*. 2012.Rai P,2015)

COLLECTION OF INFORMATION

Method used for collection of data involves field examination, semi structured interviews of vaidya and hakim, local practitioner. Verbal questionnaires were put forth to the villagers based on health

problem, there diagnose, treatment method, local name of medicinal plant used, parts used, method of preparation and its application.

PLANT IDENTIFICATION

Identification of plant was done through traditional practitioner and comparative study of plant specimen with different books available in the department of Botany Chaudhary Charan Singh University, Meerut.

RESULTS AND DISCUSSION

In present survey study investigation, the multi-use tree species were recorded. Totally there are 95 of tree species belonging to 37 families and 89 genera were recorded.*Acacia catechu, Acacia nilotica, Aeglemarmelos.Ailanthes excels, Albizialebbeck, Alstoniascholaris, Anthocephaluscadamba, Azadirachtaindica, Bauhinia variegatavar candida, Bombaxceiba, Calliandrahaematocephala, Callistemon viminalis, Calotropisgigantea, Calotropisprocera, Carica papaya, Carissa carandas, Cassia fistula, Cassia siamea, Cassia spectabilis, Dalbergiasissoo, Delonixregia, Diospyrosvirginiana, Dombeyanatalensis , Drypetesroxburghii, Ehretialaevis, Emblicaofficinalis,Erythrinaindica, Fernandoaadenophylla, Ficusbenghalensis, Ficusreligiosa, Hamelia patens, Grevillearobusta, Holopteleaintegrifolia, Jacaranda mimosifolia, Kigella Africana, Lagerstroemia indica, Lagerstroemia speciosa, Leucaenaleucocephala, Mangiferaindica, Meliaazedarach, Mimusopselengi, Moringaoleifolia, Morus alba, Murrayakoenigii, Neriumindicum, Nyctanthes arbor-tristis, Phoenix dactylifera, Pithecellobiumdulce, Plumeria obtuse, Polyalthialongifolia, Pongamiapinnata, Prosopisjuliflora, Psidiumguajava, Pterospermumacerifolium, Ricinuscommunis, Syzygiumcumini, Tamarindusindica, Tectonagrandis, Terminaliaarjuna, Thevetiaperuviana, Toonaciliata, Ziziphusmauritiana,* these species are recorded in many parts of Meerut.
But *Adenantherapavonina, Adina cordifolia, Aphanamixispolystachya, Artocarpushetrophyllus, Artocarpuslakoocha, Buteamonosperma, Casuarinaequisetifolia, Celtistetrandra, Chorisiainsignis, Cretevaadansonii, Diosprosmelanoxylon, Eriobotrya japonica, Ficusglomerata, Helicteresisora, Holarrheaantidysenterica, kydiacalycina, Laserstroemia alba, Lawsoniainermis, Limoniaacidissima, litchi chinensis, Madhucaindica, Prunuspersica, Pyruscommunis, Salix tetraphylla, Santalum album, Sapindusmukrossi, Securinegavirosa, Spondiaspinnata, Sterculiafoetida, Streblusasper, Strychosnuxvomica, Tamilnadiauliginosa, Terminaliabellirica, Trewianudiflora, Vitexnegundo,* these are recorded in few parts of Meerut. A complete result clears in the Table 1, Table 2 and Fig B 21 specific photographs.

During the survey work, a total 37 Family medicinal plant species were identified and recorded in the district Meerut of Uttar Pradesh, in which details of around 32 sub species are been given in detail with their value and distribution and the total of 95 medicinal plant resources are clearly depicted in

The findings agree with Chakraverti and Jain, 1984, Krishen, *et al*. 2006, Prasanna, *et al*. 2012, Rai, Y. 2015, 2016,
Our findings are similar to Rai, Y. 2015, Sachan*et al*.,2015; Rai.P,2016; Om Prakash,*et al*.,2017 also reported sum of the plant species used against different ailments. Discussed some of the plants used by the different tribes against different ailments. So, the need of the hour is to go for their conservation and its cultivation in the area, as we are progressing toward modernization, the knowledge of traditional uses of plants may not be lost in due course.

Table-1.Observation: Botanical names, regional names, plant parts used and families of all identified medicinal plants of this region.

Table :1.Trees of Meerut district Uttar Pradesh

Sr. No.	Botanical Name	Regional Name	Part used	Location & Status	Uses
1	*Acacia catechu*	Babool	stem	Mostly Hastinapur forest and many areas of Meerut	Source of kattha, which is astringent, digestive and useful in ailments of throat, mouth, gums, cough and diarrhoea. Nitrogen fixing and timber
2	*Acacia nilotica*	Babool	Stem	Hastinapur forest and many areas of Meerut	It is also useful in diabetes, cure skin diseases and bleeding piles. Nitrogen fixing and timber
3	*Adenantherapavonina*	Red sandal wood	Stem	Mostly saroorpur Block Meerut	A. pavonina is also known as a "food tree", because its seeds are often eaten by people. Decoction of leaves is used to treat gout and rheumatism A red powder made from the wood is used as an antiseptic paste. Bark used to wash hair. Nitrogen fixing and timber.
4	*Adina cordifolia*	Haldu	Stem Bark	Few areas of Meerut)	The bark of tree is used for the treatment of cough jaundice, stomachache and ulcer. Avenue tree and yielding timber
5	***Aeglemarmelos***	**Bael**	Fruit	Many areas of Meerut	Fruit is used dysentery, constipation, peptic ulcer& Internal hemorrhages. Root and bark is used in fever and leaves used in diabetes. Flowers are source of nectar for many insects
6	*Ailanthesexcelsa*	Mharukh	Leaf and bark	Mostly Hastinapur forest and Many areas of Meerut	Its leaves and bitter bark is used as a tonic and for curing fever, bronchitis and dyspepsia
7	*Albizialebbeck*	Siris	Seeds	Many areas of Meerut	Oil from seeds used in leprosy& purities of skin. Ornamental, and timber yielding
8	*Alstoniascholaris*	Chatian		Many areas of Meerut	Bark is used in malaria. It is a hyperaccumulator for polluted soils
9	*Anthocephaluscadamba*	kadamba		Machra Block and many areas of Meerut.	The use of dried stem bark in disorders of female genital tract and bleeding disorders. Fruits

					are source of food for many species of birds. Avenue trees, Ornamental Timber yielding
10	*Aphanamixispolystachya*	Pithraj		Sarurpur Block and many areas of Meerut	The stem barks of Aphanamixispolystachya is used traditionally in treatment of tumors, cancer and rheumatism
11	*Artocarpushetrophyllus*	Kathal	Fruits	Gandhi bagh and Hastinapur forest and few areas of Meerut.	Fruits edible as vegetable. The latex can be used as chewing gum The ripe fruit is eaten fresh or is processed into numerous delicacies including jam, jelly, and chutney. It also makes an excellent dried fruit or preserved candy when combined with sugar or honey. The pulp is also used as a flavoring in ice cream and drinks
12	*Artocarpuslakoocha*	Barhal	Fruits	Railway Colony City station and BaffarBumbaBaghpat road Meerut	The fruits are used to tonic for the liver. Timber yielding.
13	***Azadirachtaindica***	**Neem**	**Leaf**	**Mostly village and many parts of Meerut**	Leaves are antiseptic used in wounds, skin disease, eczema, burn. Seed is used for hair care and dandruff. Twig is used as tooth brush and in measles. Fruits are food source for many species of birds
14	*Bauhinia variegatavar candida*	Kachnar	Root and stem	Hastinapur forest and many parts of Meerut	Decoction of roots is carminative and prevent obesity. Bark is used as anthelmintic.. Dried buds used in diarrhea, dysentery and piles. Leaves. Source of nectar many birds and honey bees
15	*Bombaxceiba*	**Semal**	Roots and Flowers	Mostly Hastinapur forest And many parts of Meerut	Root is stimulant& tonic prickles used to cure pimples. Flowers are source of nectar for many species of birds, insects and mammals.
16	*Buteamonosperma*	Palash	Flowers and Laef	PalashHastinapur forest and Ghat Village Meerut	Leaf extract is used against pimples and tumors; bark powder is used orally for menstrual disorders and flower paste is applied externally skin disease. Root is used in snake

					poisoning. Dye-Flowers yield a yellowish orange dye. NectarFlowers are provide nectar to many birds and honey bees
17	*Calliandrahaema tocephala*	Red powder puff	Bark	Many areas of Meerut	Bark is medicinally is to cure piles diseases, also used in toothpaste. Ornamental small tree
18	*Callistemon viminalis*	Bottle brush	Seeds and Flower	Many areas of Meerut	Volatiles oil has been used antimicrobial and antifungal agents. Flowers are source of nectar. It is grow in gardens for ornamental purpose.
19	*Calotropisgigante a*	Madar	All part – Roots ,bark,Flo wer	Mostly Waste land and many areas of Meerut	Juice from the plant is used to cure piles. Root bark is made into a paste and applied to treat elephantiasis. Flower decoctions are good digestive and also cure stomachache. Nectar source for butterflies, xylocopa and sunbirds.
20	*Calotropisprocer a*	Madar		Mostly waste land and many areas of Meerut	The smoke from the burning leaves is inhaled for the cure of asthma and cough. A paste of the charcoal prepared from roots mixed with some bland oil is applied over skin diseases. Nectar source for many insects and birds.
21	*Carica papaya*	Papaya		Mostly village and Many parts of Meerut	The ripe fruit is considered to be good for digestive troubles and skin diseases. The seeds are used as a vermifuge.
22	*Carissa carandas*	Karanda	Fruits	Many parts of Meerut	The fruits are rich source of iron, so its used in treatment of anaemia. Fruits are used for jam, syrup and chutney.
23	***Cassia fistula***	**Amaltas**	**Flowers**	**Many areas of Meerut.**	**It is useful in skin diseases, cardiac disorders, and intermittent fever and also as an anti-inflammatory.**
24	*Cassia siamea*	Kassod	Flowers	Many areas of Meerut.	The flowers are eaten in curry. The wood is used in Burma for mallets, shelves and walking-

					sticks because of its hardness and durability
25	*Casuarinaequisetifolia*	Whistling pine	Root	Many areas of Meerut	Commonly cultivated in gardens nitrogen fixing and timber
26	*Celtistetrandra*	Khrik	Seeds	Few areas of Meerut	The juice from the seeds is used in the treatment of indigestion
27	*Chukrasiatabularis*	Chikrasi	Stem,wood	Few areas of Meerut.	It is used in skeletal fractures, while the bark is a powerful astringent used against diarrhoea. Wood used for high class furniture.
28	*Cordiadichotoma*	Lasora	Fruits	Few areas of Meerut.	The fruits are used against cholera, dropsy and dysentery. Dye-Leaves yield a brownish black dye
29	*Cretevaadansonii*	Barna	Leaf and bark	Few area of Meerut	The fresh juice of leaves is useful as a tonic. Bark cures urinary bladder stones. Avenue Timber yielding
30	*Dalbergiasissoo*	Shisham	Leaf and Root	Many parts of Meerut	Juice of leaves cure apthalus ulcer and used as gargles in sore throat. Root is used in gonorrhea. Timber yielding and Nitrogen fixing.
31	*Delonixregia*	Gulmohur	Root and flowers	Many areas of Meerut	It is a good tree to control soil erosion. Ornamental, and Nitrogen fixing
32	*Diosprosmelanoxylon*	Tendu	Fruits and leaf	Many areas of Meerut	The edible fruits are largely eaten and disseminated by fruit bats and birds, notably hornbills.. The fruits have a cooling and an astringent effect. Dried flowers are reportedly useful in urinary, skin and blood diseases. Leaves are used to make Cigars commonly known as Beedi
33	*Diospyros Virginian*	Persimmon	Seed	Mostly Hastinapur area and many areas of Meerut	with hops, cornmeal or wheat bran into a sort of beer or made into brandy
34	*Dombeyanatalensis*	Ajuba	Root	Many areas of Meerut	Root is used in Ulcer ,Ornamental
35	*Drypeterisroxburghii*	Putranjiva	Leaf	Many areas of Meerut	The leaves are used for catarrh, fever,and Sterlity

36	*Ehretia leaves*	Small cherry	Leaf	Many areas of Meerut	Leaves are applied to ulcers and in headache. Fruit is astringent, anthelmintic, diuretic, demulcent, expectorant and use in affections of urinary passages, diseases of lungs and spleen. Fruits are edible.
37	*Emblicaofficinalis*	Amala	Fruits	Many areas of Meerut	Fruit is blood purifier used in jaundice. It is one of the ingredients of triphala churn a. source of vita. C, given in diabetes it is good for hair
38	*Eriobotrya japonica*	Loquat	Fruits	Many areas of Meerut	The fruit is used fresh and is made in to Jelly and pies and sauce
39	*Erythrinaindica*	Coral tree	Leaf	Many areas of Meerut	Warm poultice of the leaves are applied externally to relive joint pain
40	*Fernandoaadenophylla*	Snake Phali	Seed	Many areas of Meerut	The oil is used in muscular pain,Timberavenue,and ornamental.
41	*Ficusbenghalensis*	Bargad	Fruits	Many areas of Meerut	The fruits are used as tonic. The latex of plants useful in neuralgia, rheumatism hemorrhoids, gonorrhea, inflammations, and skin diseases. Fruits are source for many species of birds
42	*Ficusglomerata*	Goolar	Fruits	Many areas of Meerut	The fruits are carminative and the milky latex is used to treat piles and diarrhoea. Fruits important source of food for birds and other mammals
43	*Ficusreligiosa*	Peepal	Leaf	Hastinapur forest and Many areas of Meerut	Leave juice used for asthma, cough and sexual disorders, diarrhea, haematuria, toothache, migraine, eye troubles, gastric problems, scabies. The ripe fruit is cooling, alexipharmic, good for burning sensation, foul taste, thirst, biliousness and diseases of blood and heart. Powdered dry fruit destroys sorrows of a person. Seeds are laxative and if taken three days during menstruation, sterilizes women for long time.It is important for honey bees and many birds.

44	*Hamelia patens*	Fire bush	Flowers	Many areas of Meerut	Nectar source for bees, Birds and other insect.
45	*Grevillearobusta*	Silver oak	Stem	Many areas of Meerut	The wood from Grevillearobusta is used in parts of the world for fuel as it makes good charcoal and firewood, as well as being used to make furniture. It is thought that the gum which exudes from the tree when it is cut could be used for industrial purposes. Yellow and green dyes can be made from the leaves from Grevillearobusta is used in parts of the world for fuel as it makes good charcoal and firewood.
46	*Helicteresisora*	Marod phalli	Root and bark	Hastinapur Block and Many areas of Meerut	The root and bark are expectorant and demulcent, and are useful in constipation, colic, scabies, diabetes, diarrhea and dysentery. The fruits are astringent, , stomachic, vermifuge, vulnerary and useful in griping of bowels, flatulence of childerens
47	*bHolarrheaantidysenterica*	Kurchi	Leaf and flowers	Many areas of Meerut	It is one of the best drugs for Dierrhoea
48	*Holopteleaintegrifolia*	Jacaranda	Leaf and bark	Hastinapur forest and Many areas of Meerut	The leaves and bark are used in treating, oedema, diabetes, leprosy and other skin diseases, intestinal disorders, piles and spruce. Seed and paste of stem bark is used in treating ringworm
49	*Kigella Africana*	Balam-khira	Fruits	Few areas of Meerut	The fruits are used to treatments for skin afflictions, and intestinal worms
50	*kydiacalycina*	Pola	Flower	Hastinapur and Many areas of Meerut	Source of good honey. Body swellings, body pain, boils, diabetes, febrifuge,increases saliva, inflamatio rheumatism. Flowers are important source of nectar for honey bees.
51	*Lagerstroemia alba*	White Jarul	Leaf	Sarurpurkhurd areas of Meerut (Only one tree)	The leaves are purgative and diuretic. The bark is considered stimulant and febrifuge and a

					decoction or infusion is given in abdominal pain and diarrhoea. The roots are considered astringent, stimulant and seeds are narcotic
52	*Lagerstroemia indica*	Crape myrtle	Flower	Many areas of Meerut	Cultivared in garden for ornamental.
53	*Lagerstroemia speciosa*	Jarul	Root	Few areas of Meerut	Root is used for Jaundice Bark infusion is taken orally for diabetes, diarrhea and dysentery.
54	*Lawsoniainermis*	Mehandi	Leaf	Many areas of Meerut	Leaves extracts used as hair and hand dyeing and curing dandruff and heel crecks
55	*Leucaenaleucocephala*	Subabool	Root	Many areas of Meerut	Importance for nitrogen fixing
56	*Limoniaacidissima*	Kaith	Fruits	Many areas of Meerut	The ripe fruit pulp is also used to make chutney. Its uses dysentery, diarrhea, liver ailments, chronic cough and indigestion. The root juice was used remedy for snake bite.
57	*Madhucaindica*	Mahua	Brak,Seed	Few areas of Meerut	The tree bark is used to cure leprosy and heal wound. Flowers are used to cough, biliousness and blood pressure. The oil is used for the care of the skin, to manufacture soap or detergents, and as a vegetable butter.
58	*Mangiferaindica*	Aam	Fruits	Many areas of Meerut	The Fruit contains vitamins A,B,C. Leaves are used in blood dysentery, soreness of voice. Raw fruit for prickly heat
59	*Meliaazedarach*	Bakain	Seeds	Many areas of Meerut	Seed-oil is used in rheumatism. Wood-extract is used in asthma Fruits are food source for many birds.
60	*Mimusopselengi*	Maulsari	Bark	Few areas of Meerut	Ash of the bark is rubbed and applied on gum. Fruits are edible.
61	*Moringaoleifolia*	Shagen	Leaf	Many areas of Meerut	The tree is a source of proteins, calcium, iron and vitamin C. The leaves are used to asthma, tuberculosis, diarrhoea, dysentery, jaundice and cholera. Best water purifier.
62	*Morus alba*	Shatoot	Fruits	Many areas of Meerut	Fruit-cooling, mild laxative. Used for sore throat, dyspepsia

					and melancholia. Leaves and root bark-expectorant, diuretic, hypotensive. Bark extract-hypoglycemic. Leaf antiinflammatory, emollient, diaphoretic.
63	*Murrayakoenigii*	Karipatta	Leaf	Hastinapur forest Many areas of Meerut	many areas of Meerut Its leaves as curry are used in indigestion and jaundice. Flowers are source of nectar for many insects species.
64	*Neriumindicum*	Pink oleander	Roots	Few areas of Meerut	Roots ground and fried in ghee applied on the ear to cure inflammation. Flowers are source of nectar for sunbirds and honey bees
65	*Nyctanthesarbortristis*	Harshingar	Leaf	Many areas of Meerut	Decoction of the leaves of Nyctanthes arbor-tristis Linn is used in the treatment of chronic fever, rheumatism, intestinal worms,diuretic
66	*Phoenix dactylifera*	Khajur	Fruits	Hastinapur region And Many areas of Meerut	Fruits are nutritive, laxative and useful in fever and gonorrhea. Leaves serve as hand fans.
67	*Pithecellobiumdulce*	Jungalejalebi	Leaf, Fruit	Many areas of Meerut	The leaves can be applied as plasters for pain and veneral sores. Decoctions of leaves are also used for indigestion and abortifacie
68	*Plumeriaobtusa*	Champa,Gulchin	Flower	Many areas of Meerut	Ornamental
69	*Pongamiapinnata*	Karanja	Seed	Many areas of Meerut	Seed powder is applied scalp for dandruff treatment. Leaf juice as a nasal drops for migrain
70	*Prosopisjuliflora*	VilaitiKeekar	Stem	Hastinapur and Many areas of Meerut	The leaves can be used for are Diarrhoea.
71	*Prunuspersica*	Peach	Fruits	Many areas of Meerut	Peaches are rich in phenolic and carotenoid compounds which possess anti-tumor and anti-cancer properties and help in fighting various types of cancers such as breast cancer, lung cancer and colon cancer
72	*Psidiumguajava*	Amrood	Leaf and	Many areas of Meerut	Decoction of bark is used for stomachache, fever, headache,

			Fruits		gonorrhea, menstrual disturbances and sores. The young leaves are used as tonic in diseases of digestive function. A decoction of the leaves
73	*Pterospermumacerifolium*	KanakChampa	Bark and leaf	Many areas of Meerut	Bark and leaves are used in smallpox.
74	*Pyruscommunis*	Naspati	Fruit	Many areas of Meerut	Pear is a rich source of Vitamin C, ascorbic acid and it is an antioxidant
75	*Ricinuscommunis*	Arand	Seeds	Many areas of Meerut	Castor seed oil is used widely for various purposes. It is used as a lubricant in high-speed engines and aero planes, in the manufacture of soaps, transparent paper, printing-inks, varnished, linoleum and plasticizers. It is also used for medicinal and lighting purposes. The cake is used as manure and plant stalks as fuel or as for preparing paper-pulp. In the silk-producing areas, leaves are feed to the silkworms. Leaves are used in the form of a poultice or for sores and swellings. Castor bean is a most hyperaccumulator for contaminated soils.
76	*Salix tetraphylla*	Willow	Stem	Many areas of Meerut	Willow bark source of asprin. The wood is used to make cricket bats.Twigs are used to make baskets
77	*Santalum album*	SafedChandan	Wood	Only hastinapur region, Meerut	Sandalwood oil is used in perfumes, cosmetics, aromatherapy and pharmaceuticals.

78	*Sapindusmukrossi*	Reettha	Fruits and seed	Few areas of Meerut	A decoction of the bark is good for cattle suffering from ulcers due to worm infestation after calving. The fruits are good for asthma, diarrhoea, cholera, verminosis and gastralgia due to dyspepsia. Its fruits are natural substitutes for soaps and hair dyes
79	*Saracaashoka*	Ashoka	Fruits	Many areas of Meerut	It is very commonly used to regularize hormones and menstrual cycle and leucorrhea and hyper tension,heart disease ,Abdominal pain, Utrine bleeding
80	*Spondiaspinnata*	Hartho	Fruits	Few areas of Meerut	Fruits are very nutritious and rich in vitamin A, minerals and iron content. The bark is useful in dysentery, diarrhea, and vomiting
81	*Sterculiafoetida*	Janglibadam	Leaf	Few areas of Meerut	Leaves of this plant are used as herbal medicine as aperients, diuretic and as insect repellant. Decoction of wood boiled with seed oil is said to be employed in rheumatism.
82	*Streblusasper*	Siora	Leaf	Mostly Hastinapur areas of Meerut	Leaves are used in diarrhea and dysentery. The latex is used for crack in foot and toothach
83	*Strychnosnuxvomica*	Kuchla	Fruits and roots	Many areas of Meerut	Kuchla is used as a tonic And the treatment of nervous disorders and paralysis, always in small doses, for it is a virulent poison. Fruits pulp source of food many birds
84	*Syzygiumcumini*	Jamun	Bark	Many areas of Meerut	The bark is used in sore throats, bronchitis, asthma, ulcers dysentery and purifying blood. The fresh juice of bark with goats milk is given in diarrhoea
85	*Tamarindusindica*	Imli	Fruits and flower	Many areas of Meerut	Tamarind source of vitamin C used for cure scurvy. Flowers are useful for piles treatment.
86	*Tamilnadiauliginosa*	Pinda	Bark	Hastinapur forest and Many areas	The plant are used for various ailments like Cholera, diarrhea,

				of Meerut	dysentery, eye complaints, pimples, diuretic, tonic properties, biliousness, aphrodisiac etc
87	*Tectonagrandis*	Sagaun	Bark	Hastinapur forest and Many areas of Meerut	The bark is bitter tonic and is considered useful in fever. Dye-leaves obtained the deep orange dye. Best quality timber source
88	*Terminaliaarjuna*	Arjuna	Bark	Many areas of Meerut	Bark is used as a heart tonic. Juice of fresh leaves is used for earache
89	*Terminaliabelliri ca*	Bahera	Fruits	Many areas of Meerut	Fruit wall is used for cough, sore throat and headache. Fruit is used in the preparation of triphala churn a.
90	*Terminaliachiubu la*	Harad	Fruits	Many areas of Meerut	Fruits laxative, stomachic, tonic, & form a constituent of triphala. Fruits pulp powders are used in asthma. Bark diuretic and cardio tonic
91	*Thevetiaperuvian a*	Yellow oleander	Flower	Many areas of Meerut	Flowers are source of nectar for sunbirds and honey bees.
92	*Toona ciliate*	Toon	Leaf	Many areas of Meerut	Leaves are tonic, useful in chronic dysentery. Flowers used in menstrual disorders
93	*Trewianudiflora*	Khamara	Fruits ,wood	Many areas of Meerut	Fruits are edible and wood used for match boxes.
94	*Vitexnegundo*	Chaste tree	Root and leaf	Many areas of Meerut	The whole plant decoction is used to treat cough, fever and asthma. Roots tincture is used in rheumatism. Leaves are effective in gonorrheal epididymitis and as vermifuge. Smoke from the burning dried leaves relieves headache
95	*Wrightaarborea*	dudhi	Leaf and root	Hastinapur forest and Many areas of Meerut	The leaves are applied as a poultice for mumps and herpes. Seed is used in chronic fever. Root purifying blood. Seed and bark is used in kidney stone, diarrhoea and anemia.

Table .2: Contains list of plants with their family name and frequency.

S.No.	**Family**	**Frequency**
1	Anacardiaceae	2
2	Annonaceae	1
3	Apocynaceae	7

4	Arecaceae	1
5	Asclepiadaceae	2
6	Bignoniaceae	3
7	Bombacaceae	2
8	Boraginaceae	2
9	Capparaceae	1
10	Caricaceae	1
11	Casuarinaceae	1
12	Combretaceae	3
13	Ebenaceae	2
14	Euphorbiaceae	4
15	Leguminosae	16
16	Loganiaceae	1
17	Lythraceae	4
18	Malvaceae	2
19	Meliaceae	4
20	Moraceae	6
21	Moringaceae	1
22	Myrtaceae	3
23	Oleaceae	1
24	Proteaceae	1
25	Putranjivaceae	1
26	Rhamnaceae	1
27	Rosaceae	1
28	Rubiaceae	4
29	Rutaceae	3
30	Salicaceae	1
31	Santalaceae	1
32	Sapindaceae	2
33	Sapotaceae	2
34	Simaroubaceae	1
35	Sterculiaceae	3
36	Ulmaceae	2
37	Verbenaceae	2

Conclusion

Nowadays, data on restricted population and scarce distribution the species like, Aeglemarmelos, and Meliaazedarach, Mimusopselengi, Moringaoleifolia, Morus alba, Murrayakoenigii, Neriumindicum, Nyctanthes arbor-tristisProsopisjuliflora, Psidiumguajava, Pterospermumacerifolium, Ricinuscommunis, Syzygiumcumini, Tamarindusindica, Tectonagrandis, Terminaliaarjuna, Thevetiaperuviana, Toona ciliate, Adina cordifolia, Aphanamixispolystachya, Artocarpushetrophyllus were observed locally threatened in the area need both, in-situ and ex-situ conservation and urgent protection for sustainable utilization.

The species like Azadirachtaindica, Spondiaspinnata, Sterculiafoetida, Streblusasper, Strychnosnuxvomica, Tamilnadiauliginosa, Terminaliabellirica, Trewianudiflora, Vitexnegundo and Aeglemarmelos were observed as most important medicinal values

In this survey we find out the maximum numbers of plants belong to the family Leguminosae And Apocynaceae, which shows a significant ethnobotanical diversity in different block regions of Meerut District.

Thus, on the basis of above results and discussions, it may be concluded that medicinal plants of western Uttar Pradesh state are considered as a very important sources of medicines for treatment of several types of human diseases

Therefore, due to much usefulness of medicinal plants of this region (Meerut,western part of Uttar Pradesh state), protection and conservation of these plants is necessary to all of us for better survival and sustainable environment too.

Hence the present study aimed to focus the medicinal activity as well as mycoplasma association of plants on tested pathogens which showed significant activity

Conflict of interest statement

Authors declare that they have no conflict of interest.

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Table 3. Photograph some specific plants of Meerut district


Fig.1..Azadirecta indica


Fig:2.Aegel marmilos


Fig:3. Cassia fistula


Fig:4. Buteamonosperma


Fig:5.Acaciacatechu


Fig:6 calliandra-haematocephala


Fig:7.Calotropicgignetia


Fig:8. Saraca-asoca-


Fig:9. Trewia-nudiflora1


Fig:9.Carica papaya


Fig:10.Vitexnegundo


Fig:11.Causurianequisetifolia


Fig:12.Adenantherapavonina

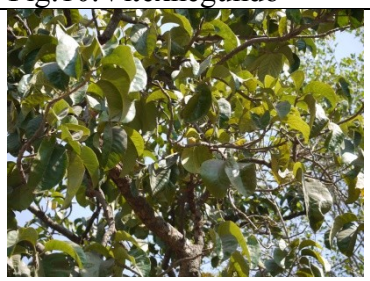
Fig:13.Artocarpuslakucha


Fig:14.Albizialabbak


Fig:15.Grevlia robusta


Fig:16Alstoniascholaris


Fig: 17.Anthocephalus cadamba


Fig:18.Santalam albam


Fig:20.Aphanamixispolystachya


Fig:21.Bombaxceiba