

A Study of Flora of Pilkhuwa in Uttar Pradesh With its Medicinal Values

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ABSTRACT

The present study was carried out to document the flora of Pilkhuwa, Uttar Pradesh, with special reference to their medicinal importance. A total of 34 medicinally important angiosperm species, belonging to 34 genera and 24 families, were recorded during the study. The plants showed different growth forms, including trees, herbs, shrubs, climbers, palms, and parasitic plants. Among these, trees were the most common (41.2%), followed by herbs. Families such as *Apocynaceae*, *Myrtaceae*, *Moraceae*, *Rutaceae*, *Rosaceae*, *Combretaceae*, and *Arecaceae* were represented among the recorded plants.

The study also recorded the traditional medicinal uses of different plant parts. Leaves were the most commonly used plant part (32.4%), followed by stem bark (23.5%). Other parts used included fruits, seeds, flowers, roots, latex, and the whole plant in the case of parasitic species. The recorded plants were traditionally used for various health-related conditions and were grouped into 11 broad therapeutic categories, including skin-related problems, digestive disorders, respiratory problems, metabolic disorders, renal problems, and cardiovascular conditions.

Some commonly recorded medicinal plants, such as *Azadirachta indica*, *Terminalia arjuna*, *Syzygium cumini*, and *Kalanchoe pinnata*, indicate the importance of plants in traditional healthcare practices. At the same time, plants such as *Datura metel*, *Calotropis procera*, and *Cascabela thevetia* require particular care because of their known toxic or potentially harmful properties. Therefore, their traditional use should be considered with appropriate safety precautions.

The present study provides baseline information about the plant diversity and medicinal importance of the flora of Pilkhuwa. The findings may be useful for further studies on ethnobotanical knowledge, phytochemical composition, pharmacological activities, and conservation of medicinal plant resources in the region.

Keywords- Ethnobotany, Floristic Survey, Pilkhuwa Flora, Medicinal Plants, Traditional.

I. INTRODUCTION

Pilkhuwa is a unique town located in the Hapur district of Uttar Pradesh, India. While it is widely famous for its textile industries and handloom products, its geographic location gives it a very rich natural heritage. The town lies within the fertile Indo-Gangetic plains, which means it experiences a composite climate with hot summers, a wet monsoon season, and cold winters. This

specific climate, combined with nutrient-rich alluvial soil, creates an ideal environment for a wide variety of plant species to grow naturally. For many generations, the people living in and around Pilkhuwa have relied heavily on these local plants not just for food and shelter, but also as a primary source of medicine. This project is designed to explore, document, and categorize the different types of plants found in this area, focusing specifically on how they are used to heal various human health conditions.

Traditional healthcare systems like Ayurveda have always used plants as their main ingredients. In rural and semi-urban parts of Pilkhuwa, many families still use home remedies made from backyard weeds and trees before visiting a modern hospital. This is because plant-based medicines are affordable, easily available, and generally have fewer side effects when used correctly. However, most of this traditional knowledge is passed down only by word of mouth from older generations to younger ones. Without proper scientific documentation, this valuable information can easily be lost forever. Therefore, this MSc project aims to systematically list the plants of Pilkhuwa, identify their botanical names, and explain exactly how local people use them for health and healing.

Before starting the actual fieldwork, it was necessary to look at what is already known about the plants of Northern India. The Indo-Gangetic plain has been studied by many botanists in the past, but local pockets like Pilkhuwa often get left out of large-scale textbooks. Past research shows that plants produce special natural chemicals called phytochemicals, which include things like alkaloids, flavonoids, and tannins. These chemicals are the reason why a plant can kill bacteria, reduce pain, or lower a high fever. By looking at previous studies, we can see that many plants commonly dismissed as useless weeds along the roadsides are actually powerful medicinal powerhouses.

Medicinal plants play a massive role in global healthcare today. The World Health Organization states that a huge percentage of the world's population still relies on traditional plant medicines for their basic health needs. In India, plants like Neem, Tulsi, and Ashwagandha are famous nationwide. However, every specific town or village has its own unique way of using local plants based on their availability. Reviewing past literature helps this project compare the plants found in Pilkhuwa with plants found in other parts of Uttar Pradesh. It allows us to see if the people of Pilkhuwa use these plants in the exact same way as others, or if they have developed unique local remedies that have never been written down before.

Key Medicinal components

Neem is highly valued for azadirachtin and nimbin, which provide potent antibacterial, antiviral, and anti-inflammatory properties. Arjun is rich in cardiogenic flavonoids, and gallic acid, making it essential for cardiovascular health. Jamun, Mango, and Pomegranate are packed with anthocyanins, ellagic acid, and polyphenols, which offer high antioxidant capacity and help regulate blood glucose levels. Peepal and Banyan trees contribute therapeutic sterols, furanocoumarins, and tannins used to treat skin ailments and digestive issues. Datura and Bhang (Cannabis) contain powerful alkaloids like scopolamine, hyoscyamine, and cannabinoids, which act heavily on the central nervous system as analgesics, antispasmodics, or sedatives, requiring highly controlled dosages. Flowering plants like Gudhal (Hibiscus), Mogra

(Jasmine), and Rose yield essential oils, flavonoids, and organic acids that soothe inflammation, protect body tissues, and improve skin health. Meanwhile, common dietary plants such as Curry Patta, Lemon, Sweet Lime, and Guava are excellent sources of volatile oils (like linalool and limonene), ascorbic acid (Vitamin C), and carotenoids, which boost immune function and enhance digestion.

II. TRADITIONAL HEALTH APPLICATIONS

Metabolic and Heart Health

Neem acts as a powerful blood purifier. It treats chronic skin infections and boosts immunity. Jamun helps regulate blood glucose levels in diabetes. Arjun bark strengthens heart muscles and improves cardiovascular circulation.

Digestive Wellness

Bal pattar cures chronic diarrhea and dysentery. It cools the digestive tract. Lemon relieves indigestion and provides high vitamin C. Guava leaves possess antimicrobial properties that soothe stomach infections.

Pain and Respiratory Relief

Peepal leaves treat respiratory ailments like asthma. Datura relieves severe muscle spasms and respiratory congestion. Bhang acts as a potent traditional analgesic for severe pain.

Skin and Hair Care

Gudhal (Hibiscus) stimulates hair growth and conditions the scalp. Rose water calms skin inflammation and irritation. Castor bean oil relieves joint pain and deep skin dryness.

Phytochemical constituents

Medicinal plants exert therapeutic effects due to secondary metabolites—bioactive chemical compounds naturally synthesized by the plant.

Alkaloids: Nitrogenous compounds that act on the central nervous system. They offer powerful analgesic, sedative, and anti-malarial properties.

Flavonoids: Ubiquitous polyphenolic compounds. They function as excellent antioxidants, scavenging free radicals to provide anti-inflammatory and anti-cancer benefits.

Tannins: Phenolic compounds capable of binding to proteins. They act as natural astringents, accelerating wound healing and checking diarrhea by precipitating cell wall proteins.

Saponins: Glucosides that form a soapy foam in water. They exhibit strong antimicrobial, cholesterol-lowering, and immune-boosting activities.

Terpenoids / Steroids: Lipid-soluble molecules. They carry strong antibacterial, anti-inflammatory, and cardioprotective qualities.

Pharmacological activities of medicinal plants

Antioxidant Activity

Plants like Banana, Lemon, Mango, and Curry Patta protect body cells. Gudhal, Rose, Cuban Royal

Palm, and Sweet Lime clear harmful toxins. Pomegranate and Shami reduce internal stress. They all keep your cells strong, healthy, and safe from daily damage.

Antimicrobial & Antibacterial Activity

Neem, Akha, and Cuban Royal Palm lower painful body swelling. Persimmon Tree, Peach Tree, and Indian Elm soothe irritated skin areas. Madhumalti, Castor Bean, and Pomegranate calm hot joint and stomach pain. Champa, Khajur, and Bougainvillea quiet down long-term internal irritation and fever.

Antidiabetic Activity

Neem, Jamun, and Bal Patta help keep blood sugar steady. Curry Patta and Corn balance insulin levels naturally. Bougainvillea, Persimmon Tree, and Banyan Tree slow down sugar absorption from food. Guava improves how your body responds to insulin to manage glucose.

Gastroprotective & Antidiarrheal Activity

Banana and Mango coat and soothe irritated stomach walls. Jamun and Sweet Lime settle acidity to help digestion. Bal Patta, Pomegranate, Banyan Tree, and Guava stop severe loose motions. They quickly relieve stomach cramps, ulcers, and painful digestion issues.

Cardioprotective Activity

Arjun strengthens heart muscles to pump blood smoothly. Gudhal relaxes blood vessels to lower high blood pressure. Yellow Kaner modifies heartbeats to support cardiovascular function under strict control.

Sedative & Respiratory Relief Activity

Akha, Peepal, Dathura, and Shami clear airways during severe asthma. Bhang blocks heavy pain signals to help you sleep. Mogra and Indian Jujube lower anxiety to relax the mind. Peach Tree and Golden Bottle Brush clear out deep coughs and chest mucus.

Wound Healing & Skin Care Activity

Banana, Peepal, and Indian Elm knit broken skin together. Akashbal and Curry Patta promote healthy hair and prevent graying. Yellow Kaner, Champa, and Banyan Tree heal deep skin marks and cracked heels quickly.

III. MEDICINAL PLANTS

1. Neem (*Azadirachta indica*)

Neem is a common medicinal tree found in India. Its leaves, bark, flowers, seeds and oil are traditionally used for skin problems, wounds, fever and infections. Neem is also known for its antibacterial and insect-repellent properties.



2. Akha / Aak (*Calotropis gigantea*)

Aak is a hardy plant commonly found in dry areas. Its leaves, flowers and latex have been used traditionally for skin diseases, pain and digestive problems. The plant has important medicinal value but its latex can be toxic if used improperly.



3. Banana (*Musa spp.*)

Banana is an important fruit plant. Its fruit provides carbohydrates, minerals and vitamins. Different parts of the plant have been traditionally used for digestive problems, wounds and other health conditions.



4. Jamun (*Syzygium cumini*)

Jamun is a fruit tree widely grown in India. Its fruits are rich in antioxidants and are traditionally used to help control blood sugar. Seeds, bark and leaves are also used in traditional medicine.



5. Peepal (*Ficus religiosa*)

Peepal is a large and long-lived tree with cultural and medicinal importance. Its leaves, bark, fruits and roots have been used traditionally for respiratory, skin and digestive problems.



6. Arjun (*Terminalia arjuna*)

Arjun is a well-known medicinal tree. Its bark is traditionally used for heart-related health problems. It contains several compounds with antioxidant and cardioprotective properties.



7. Lemon (*Citrus limon*)

Lemon is a citrus fruit rich in vitamin C and antioxidants. It is commonly used in food and traditional remedies for digestion, cough and general health.



8. Akashbal (*Cuscuta spp.*)

Akashbal, commonly known as dodder, is a parasitic plant that grows on other plants. It has been used in traditional medicine for various conditions, including liver and digestive problems.



9. Bel Patra (*Aegle marmelos*)

Bel is an important medicinal tree. Its leaves, fruit, bark and roots are traditionally used for digestive disorders, diarrhoea and stomach problems. The fruit is also nutritious



10. Mango (*Mangifera indica*)

Mango is one of the most important fruit trees of India. Its fruit contains vitamins, minerals and antioxidants. Leaves, bark and seeds have also been used traditionally for various health problems.



11. Curry Patta (*Murraya koenigii*)

Curry leaf is widely used as a food seasoning and medicinal plant. Its leaves contain antioxidants and are traditionally used for digestive problems, diabetes management and improving general health.



12. Bhang (*Cannabis sativa*)

Cannabis is a plant with a long history of traditional use. Different plant compounds have been studied for their effects on pain, inflammation and the nervous system. Its medicinal use is regulated by law and should not be done without proper guidance.



13. Mogra (*Jasminum sambac*)

Mogra is a fragrant flowering plant. Its flowers are traditionally used in perfumes and some traditional medicines. Extracts of the plant have been studied for antioxidant and antimicrobial activities.



14. Datura (*Datura spp.*)

Datura is a medicinally important but highly poisonous plant. Some compounds from the plant have pharmacological effects on the nervous system. It should never be used as a home remedy because overdose can be dangerous.



15. Gudhal (*Hibiscus rosa-sinensis*)

Gudhal is a common ornamental plant with traditional medicinal value. Its flowers and leaves are used traditionally for hair care and skin problems. The plant also contains antioxidant compounds.



16. Rose (*Rosa spp.*)

Rose is an important ornamental and aromatic plant. Rose petals and extracts are traditionally used for skin care and cooling preparations. Rose contains several antioxidant compounds.



17. Corn (*Zea mays*)

Corn is an important cereal crop and a major source of carbohydrates. Corn silk has been traditionally

used in herbal preparations, particularly for urinary and kidney-related problems.



18. Khajur / Date Palm (*Phoenix dactylifera*)

Date palm produces nutritious fruits rich in carbohydrates, minerals and dietary fibre. Dates are traditionally considered useful for providing energy and supporting digestive health.



19. Bougainvillea (*Bougainvillea* spp.)

Bougainvillea is mainly grown as an ornamental plant. Traditional medicine has used its leaves and flowers for some health conditions. Research has reported antioxidant and antimicrobial properties in its extracts.



20. Cuban Royal Palm (*Roystonea regia*)

Cuban royal palm is a tall ornamental palm commonly planted along roads and gardens. It is mainly valued for its beauty, shade and environmental importance. Some traditional uses of different palm parts have also been reported.



21. Persimmon Tree (*Diospyros kaki*)

Persimmon is a fruit tree producing sweet, nutritious fruits. The fruits contain vitamins, minerals and antioxidants. They are considered useful as part of a healthy diet.



22. Peach Tree (*Prunus persica*)

Peach is an important fruit plant. Its fruits contain vitamins, minerals, fibre and antioxidants. Peach is mainly valued as a nutritious food and is also used in traditional remedies.



23. Golden Bottle Brush (*Callistemon* spp.)

Golden bottle brush is an ornamental flowering plant with attractive yellow flowers. Different species of *Callistemon* have been investigated for antimicrobial and antioxidant activities.



24. Indian Elm (*Holoptelea integrifolia*)

Indian elm is a medicinal tree found in many parts of India. Its bark and leaves are traditionally used for skin diseases, inflammation and digestive problems. It is an important plant in traditional medicine.



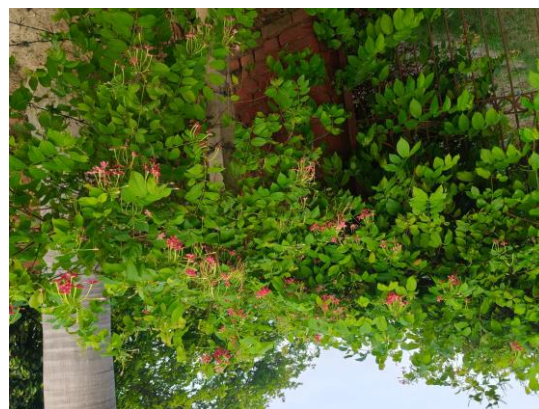
25. Sweet Lime (*Citrus limetta*)

Sweet lime is a citrus fruit rich in vitamin C and other nutrients. Its juice is commonly consumed as a refreshing drink and is traditionally considered useful for digestion and general health.



26. Madhumalti (*Quisqualis indica*)

Madhumalti is a beautiful climbing plant with fragrant flowers. It is mainly grown as an ornamental plant. Its leaves, flowers and seeds have also been used in traditional medicine.



27. Yellow Kanar / Yellow Oleander (*Cascabela thevetia*)

Yellow kanar is an ornamental shrub with yellow flowers. It contains cardiac glycosides and is highly poisonous. Although it has traditional medicinal importance, it should not be used without expert medical supervision.



28. Indian Jujube / Ber (*Ziziphus mauritiana*)

Ber is a common fruit tree in India. Its fruits are nutritious and contain vitamins, minerals and antioxidants. Leaves, bark and roots have also been used traditionally for different health problems.



29. Castor Bean (*Ricinus communis*)

Castor bean is a medicinal and industrial plant. Castor oil obtained from its seeds is widely used for various purposes. However, raw seeds contain the poisonous compound ricin and should never be consumed.



30. Pomegranate (*Punica granatum*)

Pomegranate is a nutritious fruit rich in antioxidants. Its fruit and juice are commonly consumed for health benefits. Traditionally, the peel, flowers and other parts have also been used for digestive and other problems.



31. Champa (*Plumeria* spp.)

Champa is a fragrant flowering plant commonly grown for ornamental purposes. Its flowers are used in religious and cultural activities. Some parts of the plant have traditional medicinal uses, but the latex may cause irritation.



32. Banyan Tree (*Ficus benghalensis*)

Banyan is a large tree with extensive aerial roots. Its bark, leaves, roots and latex have been used in traditional medicine for skin, digestive and other health problems. It is also ecologically important because it provides food and shelter for many organisms.



33. Shami Tree (*Prosopis cineraria*)

Shami is a drought-resistant tree that grows well in dry regions. It is valuable for soil protection, fodder and shade. Different parts of the plant have also been used traditionally for inflammation, digestive problems and other ailments.



34. Guava (*Psidium guajava*)

Guava is a common fruit tree and a good source of vitamin C, fibre and antioxidants. Guava fruits are nutritious, while leaves are traditionally used for digestive problems such as diarrhoea and stomach discomfort.



IV. REVIEW OF LITERATURE

To build an authentic database of the medicinal plant flora of Pilkhuwa, a systematic literature review was conducted. Literature was gathered from electronic databases including Google Scholar, PubMed, ScienceDirect, and ResearchGate. Additionally, traditional botanical texts and regional floras were consulted to verify local plant distributions. Local forest department reports of Hapur district provided crucial data

regarding native species. The primary objective was to map out the regional vegetation with verified health benefits. This established a strong foundation for understanding the local plant ecology.

Medicinal plants have been associated with human healthcare since ancient times and continue to contribute to traditional systems of medicine in India such as Ayurveda, Siddha and Unani, as well as through local and household practices. Different plant parts including roots, stems, bark, leaves, flowers, fruits and seeds are used for a wide range of ailments including digestive disorders, respiratory problems, skin diseases, fever and diabetes. Since floristic and ethnomedicinal studies are complementary for understanding regional plant resources, and comparatively limited information is available on the overall flora of Pilkhuwa in Hapur district, the present study is intended to document its plant diversity with emphasis on medicinally important species, their useful parts and traditional uses, to provide baseline data for future ecological, phytochemical and conservation studies.

The literature search was executed using specific keywords combined with Boolean operators. The primary search terms included combinations of Pilkhuwa and medicinal plants. Other searches used Hapur district or Western Uttar Pradesh paired with ethnobotany. Terms like traditional medicine and flora were also utilized to expand results. This targeted approach ensured that relevant regional botanical studies were not missed. The retrieved documents were compiled into a preliminary list for further screening.

To ensure data quality, strict boundaries were set for selecting research materials. Articles were included if they focused on the geographic region of Western Uttar Pradesh. They had to document verified medicinal uses of local plant species. Studies also required accurate botanical nomenclature and publication in peer-reviewed journals. This selection process filtered out irrelevant data from nonclimatic zones. The final set provided a reliable basis for the project analysis.

V. MATERIALS AND METHODS

STUDY AREA

The present research project was carried out in Pilkhuwa, a prominent town located within the Hapur district of western Uttar Pradesh, India. The region features a characteristic semi-arid climate with distinct summer, monsoon, and winter seasons, which heavily influences the seasonal availability and growth cycles of local flora. To achieve a comprehensive assessment, extensive floristic and ethnobotanical surveys were planned and executed across different seasons between September 2025 and July 2026. The selected study locations included diverse ecological niches such as local agricultural fields, rural roadsides, domestic gardens, wasteland patches, and the surrounding rural villages of

Pilkhuwa to capture a wide variety of wild, naturalised, and cultivated medicinal plant species.

Field Collection and Documentation

During frequent regular field visits, fresh plant specimens demonstrating medicinal significance were collected systematically from their natural habitats. Each field sample collection was carefully accompanied by the logging of vital field data in a dedicated notebook, noting specific parameters such as the exact collection locality, the date of collection, the natural habitat, the plant's habit (herb, shrub, climber, or tree), and its seasonal phenological stage. Simultaneously, high-resolution digital photographs capturing the distinct morphological features of the plants—such as leaves, flowers, fruits, and bark—were taken in the field to assist in the primary documentation and verification process.

Herbarium Preparation

The collected plant samples were processed using standard taxonomical techniques for herbarium preparation. Healthy and representative parts of the plants, preferably containing leaves along with reproductive structures like flowers or fruits, were carefully arranged between sheets of old newspapers and blotting papers to absorb moisture. These specimens were then placed inside a mechanical plant press, and the drying sheets were changed daily during the initial few days to prevent fungal contamination and discoloration. Once completely dried, the pressed specimens were carefully mounted onto standard herbarium sheets using high-quality adhesive, labeled properly with complete

collection details, and safely stored in the laboratory repository for future academic reference.

Taxonomic Identification and Botanical Authentication

The primary identification of the collected flora was initially carried out using their local or vernacular names as shared by the native inhabitants. To achieve strict scientific validation, the morphological and anatomical characters of the specimens were thoroughly examined using standard taxonomic literature, including the monumental work of J.D. Hooker's *The Flora of British India* and specialized regional floras covering the Upper Gangetic Plain. The verified botanical names, their respective plant families, and valid scientific authorities were further updated and authenticated by cross-referencing global digital plant databases such as the International Plant Names Index (IPNI) and The Plants of the World Online (POWO).

Ethnobotanical Data Collection on Medicinal Uses

Information regarding the traditional medicinal properties, specific parts used, and modes of formulation was gathered directly through structured and semi-structured interviews with the local population, including traditional herbal healers, village elders, and local farmers who possess ancestral knowledge of folk medicine. The field data was meticulously cross-verified with authoritative published literature such as Indian Ayurvedic texts, the official portal of the National Medicinal Plants Board (NMPB), and peer-reviewed journals focusing on the medicinal plant resources of western Uttar Pradesh.

OBSERVATION TABLE: Major Medicinal & Agricultural Flora (17 Species, 12 Families)

S. No.	Vernacular / Common Name	Botanical Name	Family	Plant Part Used	Medicinal Properties & Uses
1	Jamun	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Seeds, Bark, Fruit	Antidiabetic, astringent, antioxidant; seed powder significantly manages blood glucose levels.
2	Guava (Amrood)	<i>Psidium guajava</i> L.	Myrtaceae	Leaves, Tender Shoots, Fruit	Antidiarrheal, antimicrobial, oral astringent; leaf decoction treats toothaches, mouth ulcers, and enteritis.
3	Golden Bottle Brush	<i>Melaleuca leucadendra</i> (L.) L. / <i>Callistemon</i> spp.	Myrtaceae	Leaves, Essential Oil	Antiseptic, expectorant, decongestant; rich in 1,8-cineole, clears upper respiratory tract.
4	Lemon (Nimbu)	<i>Citrus × limon</i> (L.) Osbeck	Rutaceae	Fruit, Peel, Juice	Antiscorbutic, antioxidant, digestive, antimicrobial; rich in Vitamin C, boosts immunity.
5	Curry Patta	<i>Murraya koenigii</i> (L.) Spreng.	Rutaceae	Leaves, Roots	Antidiabetic, hypolipidemic, antiemetic, hair tonic; aids digestion and prevents premature greying.
6	Sweet Lime (Mousambi)	<i>Citrus limetta</i> Risso	Rutaceae	Fruit Juice, Peel	Immunomodulatory, antiscorbutic, refrigerant, digestive; prevents dehydration and nausea.

7	Gulab (Rose)	<i>Rosa × damascena</i> Herm.	Rosaceae	Petals, Floral Buds	Mild laxative, anti-inflammatory, cooling agent, antidepressant; used as rose water for eye care.
8	Peach Tree (Adoo)	<i>Prunus persica</i> (L.) Batsch	Rosaceae	Leaves, Bark, Flowers, Seeds	Sedative, laxative, demulcent, vermifuge; seed kernel (<i>Persicae Semen</i>) promotes blood circulation.
9	Khajur (Date Palm)	<i>Phoenix dactylifera</i> L.	Arecaceae	Fruit, Pollen, Seeds	Antioxidant, nutritive tonic, demulcent; corrects anemia and improves gastrointestinal transit.
10	Cuban Royal Palm	<i>Roystonea regia</i> (Kunth) O.F.Cook	Arecaceae	Fruit, Pollen	Lipid-lowering, prostate health (fruit extract inhibits 5-alpha-reductase, similar to saw palmetto).
11	Neem	<i>Azadirachta indica</i> A.Juss.	Meliaceae	Leaves, Bark, Seeds, Twigs	Antibacterial, antifungal, antiviral, blood purifier; used for dermatological conditions and oral hygiene.
12	Banana (Kela)	<i>Musa × paradisiaca</i> L.	Musaceae	Fruit, Pseudostem, Flowers, Leaves	Antidiarrheal, anti-ulcer, antihypertensive; rich in potassium and dietary fiber.
13	Bal Pattar (Patharchatta)	<i>Kalanchoe pinnata</i> (Lam.) Pers.	Crassulaceae	Leaves	Lithontriptic (dissolves kidney stones), wound-healing, anti-inflammatory, diuretic.
14	Gudhal (Hibiscus)	<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	Flowers, Leaves	Cardioprotective, emmenagogue, hair conditioner, antihypertensive; lowers systolic pressure.
15	Corn (Makka)	<i>Zea mays</i> L.	Poaceae	Silk (Stigmas), Grains	Diuretic, demulcent; corn silk tea treats urinary tract infections (UTIs) and kidney inflammation.
16	Arandi (Castor Bean)	<i>Ricinus communis</i> L.	Euphorbiaceae	Seed Oil, Leaves, Roots	Purgative (castor oil), anti-rheumatic, emollient; leaf poultice acts as a topical anti-inflammatory.
17	Anar (Pomegranate)	<i>Punica granatum</i> L.	Lythraceae	Fruit Peel, Seeds, Bark	Astringent, anthelmintic, potent antioxidant (ellagitannins); peel extract treats dysentery and diarrhea.

OBSERVATION TABLE 2 : PHYTOTOXIN , LATEX & TREE FLORA(17 SPECIES , 12FAMILIES)

S. No.	Vernacular / Common Name	Botanical Name	Family	Plant Part Used	Medicinal Properties & Uses
1	Akha (Madar)	<i>Calotropis procera</i> (Aiton) W.T.Aiton	Apocynaceae	Latex, Leaves, Roots	Anti-inflammatory, analgesic, expectorant; used in joint pain, asthma, and skin lesions.
2	Yellow Kaner	<i>Cascabela thevetia</i> (L.) Lippold	Apocynaceae	Leaves, Bark, Seeds (<i>Toxic</i>)	Cardiac glycoside source (cardiotonic in micro-doses), powerful piscicide and antifungal agent.
3	Champa	<i>Plumeria rubra</i> L.	Apocynaceae	Latex, Bark, Flowers	Purgative, rubefacient, anti-inflammatory; used for skin itchiness and rheumatism.
4	Peepal	<i>Ficus religiosa</i> L.	Moraceae	Bark, Leaves, Tender Shoots	Astringent, anti-inflammatory, hepatoprotective; treats respiratory ailments, diarrhea, and wound healing.
5	Bargad (Banyan Tree)	<i>Ficus benghalensis</i> L.	Moraceae	Aerial Roots, Bark, Latex	Astringent, antidiabetic, antimicrobial; latex applied to

					mucosal ulcers and joint inflammation.
6	Arjun	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn.	Combretaceae	Stem Bark	Cardiotonic, anti-atherosclerotic, hypolipidemic; used to strengthen heart muscle and regulate blood pressure.
7	Madhumalti (Rangoon Creeper)	<i>Combretum indicum</i> (L.) DeFilipps	Combretaceae	Seeds, Leaves, Roots	Anthelmintic (seeds expel intestinal parasites/roundworms), anti-pyretic, analgesic.
8	Mango (Aam)	<i>Mangifera indica</i> L.	Anacardiaceae	Leaves, Seed Kernel, Bark, Fruit	Antioxidant (mangiferin), astringent, antidiarrheal; tender leaves manage early-stage diabetes.
9	Dhatura	<i>Datura metel</i> L.	Solanaceae	Leaves, Seeds	Bronchodilator, analgesic, local anesthetic (contains tropane alkaloids); treats asthma and severe joint pain.
10	Bhang	<i>Cannabis sativa</i> L.	Cannabaceae	Leaves, Resin	Analgesic, antispasmodic, sedative, appetite stimulant; relieves severe pain and insomnia.
11	Akashbel (Amarbel)	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae	Whole Parasitic Plant	Anthelmintic, hepatoprotective, hair growth stimulant; used for jaundice and scalp disorders.
12	Mogra	<i>Jasminum sambac</i> (L.) Aiton	Oleaceae	Flowers, Leaves	Antidepressant, antiseptic, galactofuge (suppresses lactation), wound healer.
13	Bougainvillea	<i>Bougainvillea spectabilis</i> Willd.	Nyctaginaceae	Leaves, Bracts	Antidiabetic (contains pinitol), antimicrobial, anti-hepatotoxic, anti-inflammatory.
14	Persimmon Tree (Japani Phal)	<i>Diospyros kaki</i> L.f.	Ebenaceae	Fruit, Leaves, Calyx	Antioxidant, antihypertensive, anti-inflammatory; leaf extracts are used for vascular health.
15	Indian Elm (Kanju / Chilbil)	<i>Holoptelea integrifolia</i> (Roxb.) Planch.	Ulmaceae	Bark, Leaves	Anti-inflammatory, wound healer, antibacterial, antirheumatic; used in chronic skin diseases.
16	Ber (Indian Jujube)	<i>Ziziphus mauritiana</i> Lam.	Rhamnaceae	Fruit, Leaves, Bark	Sedative, astringent, immunomodulatory; leaf paste applied topically relieves boils and heat rash.
17	Shami Tree (Chhonkar)	<i>Prosopis cineraria</i> (L.) Druce	Fabaceae	Bark, Pods, Leaves	Anti-asthmatic, anti-inflammatory, demulcent; bark powder is applied on rheumatism and scorpion stings.

VI. RESULT

The present floristic survey of Pilkhuwa, Uttar Pradesh, recorded a total of 34 plant species belonging to 34 distinct genera and 24 botanical families. The recorded taxa demonstrated structural diversity across multiple growth forms, dominated by trees and herbs, followed by shrubs, climbers, palms, and obligate parasitic flora.

Among the 24 families recorded, *Apocynaceae*, *Myrtaceae*, *Moraceae*, *Rutaceae*, *Rosaceae*, *Combretaceae*, and *Arecaceae* exhibited higher species richness (≥ 2 species each), whereas 17 families were represented by a single taxon. The predominant floral elements included widely distributed urban and peri-

urban species such as *Azadirachta indica*, *Mangifera indica*, *Ficus religiosa*, *Ficus benghalensis*, *Syzygium cumini*, and *Terminalia arjuna*.

Analysis of Plant Parts Utilized

Ethnomedicinal utilization patterns revealed that local traditional applications rely on diverse vegetative and reproductive organs. Leaves and stem bark constituted the primary plant parts cited, followed by fruits, seeds, flowers, roots, latex, aerial roots, and essential oils. In specialized cases, such as *Cuscuta reflexa*, the entire parasitic plant body is harvested.

The dominance of leaf and bark harvesting reflects both the metabolic concentration of secondary

metabolites in these tissues and the relative accessibility of these organs throughout the year.

Therapeutic Categories and Ethnomedicinal Spectrum

The documented ethnomedicinal spectrum was categorized into 11 major broad therapeutic applications:

1. Dermatological and Wound Management: (e.g., *Azadirachta indica*, *Calotropis procera*)
2. Gastrointestinal and Digestive Disorders: (e.g., *Psidium guajava*, *Aegle marmelos*)
3. Respiratory and Bronchial Ailments: (e.g., *Adhatoda vasica*, *Ocimum sanctum*)
4. Inflammatory and Musculoskeletal Conditions: (e.g., *Ricinus communis*)
5. Traditional Metabolic / Glycemic Support: (e.g., *Syzygium cumini*)
6. Renal and Nephrological Ailments: (e.g., *Kalanchoe pinnata*, *Zea mays corn silk*)
7. Pyrexia and Analgesic Remedies: (e.g., *Tinospora cordifolia*)
8. Odontological and Oral Hygiene: (e.g., *Ficus benghalensis*, *Azadirachta indica*)
9. Cardiovascular-related Traditional Formulations: (e.g., *Terminalia arjuna*)
10. Anthelmintic and Parasitic Treatments: (e.g., *Holoptelea integrifolia*)
11. General Tonics and Antioxidant Sources: (e.g., *Emblica officinalis*)

VII. CONCLUSION

The present study was carried out to document the plant flora of Pilkhuwa, with special attention to plants having medicinal value. Pilkhuwa is an important town of Hapur district, Uttar Pradesh, and its surrounding areas support a variety of plant species because of the favourable soil and climatic conditions of the region. The study helped in understanding the diversity of plants found in the area and, at the same time, provided information about their traditional medicinal uses. A total of 34 medicinal plant species belonging to 24 families were recorded during the study. The findings show that the plant resources of Pilkhuwa are not only important from an ecological point of view but are also useful in the daily lives of local people.

The study indicates that local people have knowledge about the medicinal properties of several plants growing around their homes, roadsides, agricultural fields, gardens, and other nearby areas. Many of these plants are easily available and can be used for common health problems. This traditional knowledge has generally been passed from one generation to another. Such knowledge is valuable because it reflects the close relationship between people and the plants present in their surroundings. The use of local plants for healthcare also shows the importance of plant resources in rural and semi-urban communities.

During the study, different plant parts were found to be used for medicinal purposes. Leaves and bark

were among the commonly used parts. Other plant parts may also be used depending on the particular species and its traditional application. The use of leaves is particularly common because leaves are generally easy to collect and are available for a large part of the year. Bark is also traditionally used in some plants because it contains various natural compounds that may have medicinal importance. However, the collection of bark should be carried out carefully because excessive removal of bark can damage or even kill the plant.

Several important medicinal plants were recorded from the study area. *Azadirachta indica* (Neem) is one of the well-known plants and is traditionally associated with different household and medicinal uses. Similarly, *Terminalia arjuna* (Arjuna) is an important medicinal tree that has a long history of traditional use. *Syzygium cumini* (Jamun) is another valuable plant found in the region, and different parts of this plant are traditionally used for various purposes. *Kalanchoe pinnata* (Patharchatta) is also an important medicinal plant commonly known for its traditional applications. The presence of such plants in and around Pilkhuwa demonstrates the medicinal richness of the local flora.

The study also recorded plants that may be toxic or harmful if they are used incorrectly. Important examples include *Datura metel*, *Calotropis procera*, and *Cascabela thevetia*. Although some of these plants have traditional medicinal applications, they can contain biologically active compounds that may cause harmful effects when used in unsuitable amounts or without proper knowledge. Therefore, the medicinal use of plants should not be considered completely risk-free simply because the plants are natural. Correct identification, appropriate preparation, proper dosage, and awareness of possible toxicity are very important.

The documentation of these plants is also useful for creating awareness about the need for plant conservation. Increasing urbanization, construction activities, changes in land use, pollution, and the removal of vegetation may gradually reduce the availability of some plant species. If useful medicinal plants are not properly conserved, future generations may lose both the plant resources and the traditional knowledge associated with them. Therefore, local people should be encouraged to protect important medicinal plants and grow them in home gardens, community areas, schools, and other suitable places.

Another important outcome of this study is the preservation of traditional knowledge. Traditional knowledge about medicinal plants is often

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