



## Original Research Article

# Medicinal plant diversity and indigenous healthcare practices in janpad Panna, (MP), India

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## Abstract

The present study documents medicinal plant diversity and indigenous healthcare practices in Panna District, Madhya Pradesh, with the aim of exploring traditional knowledge systems that may contribute to future research in pharmacology and biodiversity conservation. Ethnomedicinal data were collected from March 2024 to April 2025 through field surveys, structured questionnaires, interviews, and participatory observations involving traditional healers, tribal communities, and Vaidya/Hakim practitioners. A total of 20 villages from Janpad Panchayat Panna were selected, and 100 informants (60 men and 40 women) were interviewed during the study period. The study recorded 97 medicinal plant species belonging to 49 families, indicating considerable ethnomedicinal diversity. The dominant families included Fabaceae, Lamiaceae, Solanaceae, Acanthaceae, Apocynaceae, Asteraceae, Convolvulaceae, Euphorbiaceae, Liliaceae, Asclepiadaceae, Combretaceae, Malvaceae, Menispermaceae, Myrtaceae, Poaceae, Rhamnaceae and Vitaceae. Analysis of life forms revealed that herbs (39.18%) were predominant, followed by shrubs (26.80%), trees (18.56%), and climbers (15.46%), reflecting the composition of the documented flora. Leaves were the most frequently used plant part, followed by roots, fruits, seeds, bark, flowers, and whole plants, with preparation methods including fresh leaf juice, decoctions, poultices, powders, and infusions for the treatment of various ailments. The comparatively less use of roots and bark suggests relatively sustainable harvesting practices among local communities. The findings highlight the richness of ethnomedicinal knowledge in the region and underscore the importance of conserving medicinal plant diversity and indigenous knowledge systems, which may serve as valuable resources for pharmacological exploration and sustainable healthcare development.

**Keywords:** Biodiversity conservation, Indigenous healthcare practices, Medicinal plant diversity, Pharmacology, Traditional knowledge system, Traditional practitioners.

## Introduction

The medicinal plants have been focused on since ancient times for saving human life (Srivastava *et al.*, 2018). The ancient Indian wisdom of medicine known as Ayurveda has come from the Atharva Veda (Narayana, 1995). Madhya Pradesh is characterized by high medicinal plant diversity and harbors several ethnic tribal populations, notably the Gond, Bhil, and Baiga (Debnath *et al.*, 2022). Local villagers, traditional practitioners, tribal peoples and Vaidya/Hakim preserve a wealth of indigenous botanical knowledge about applications of plants for human ailments, which is passed down to them orally from generation to generation (Mbelebele *et al.*, 2024). Information from indigenous traditional medicine has played a vital role in the discovery of novel products from plants as chemotherapeutic agents (Gezici *et al.*,

2019). More than 43% of the total flowering plants from India are reported to be of medicinal importance (Nath *et al.*, 2023). Medicinal plants' importance in traditional healthcare practices, providing clues to new areas of research and biodiversity conservation, is now well recognized (Kapoor, 1989; Trivedi, 2006). This study is an effort to document the diversity of medicinal plants along with the indigenous knowledge of local people for their applications in curing different human diseases. Though some workers, Roy (1992); Mudgal *et al.* (1997); Singh, *et al.* (2001); Ramesh and Suman (2009); Gwalwanshi *et al.* (2014); Poddar *et al.* (2020); Kareti and Rajpoot (2022); Kumar *et al.* (2023); Kumar and Singh (2023); and Kumar (2025) documented ethnomedicinally important plants of the MP state, still lot of work is required to be done. The present research was undertaken with the

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primary objectives of documenting the diversity of medicinal plants in the study area and systematically recording indigenous knowledge related to their use. Particular emphasis was placed on exploring local ethnomedicinal practices, including the plant parts utilized and the methods employed in the preparation of remedies. In addition, the study aimed to preserve traditional knowledge for future reference and potential pharmaceutical exploration. Finally, the research sought to raise awareness among the local community regarding the importance of conserving and protecting native medicinal plant resources to ensure their sustainable use for future generations.

## Materials and Methods

The Janpad Panchayat Panna is situated in Panna District of Madhya Pradesh, India, at a latitude of 24.72 °N and a longitude of 80.19° E, with an average elevation of 406 m (1332 ft) above mean sea level (Figure 1). The climate of the study area is subtropical, and the natural vegetation is predominantly deciduous. For the purpose of ethnobotanical sampling, 20 village panchayats were selected, namely Badagaon, Badgadi, Bandhikala, Barachh, Brijpur, Dahlanhouki, Gahra, Hinouta, Itwankhas, Itwankala, Janwar, Kudar, Laxmipur, Madaiyan, Madala, Manaki, Manour, Pahadikhara, Ramkhiriya, and Sakariya.

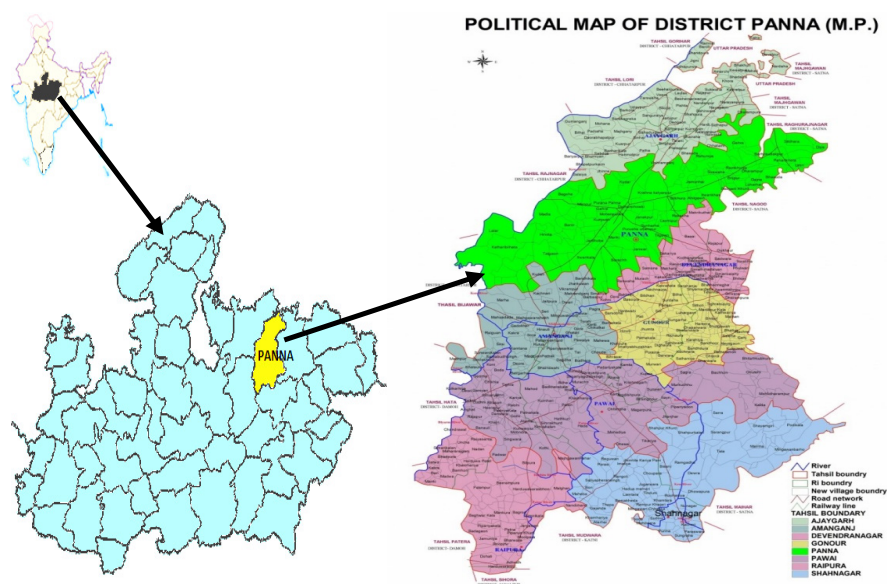
Ethnomedicinal data on medicinal plants and their uses in indigenous healthcare practices were collected over a period extending from March 2024 to April 2025. The information was gathered through systematic field surveys and interview-based methods involving traditional practitioners, tribal communities, and Vaidya/Hakim. Data collection techniques included

structured questionnaires, semi-structured interviews, and participatory observation. Considerable effort was made to establish friendly relationships with informants to ensure the reliability of the information obtained. Frequent field visits were conducted, and Participatory Rural Appraisal (PRA) meetings were organized to facilitate detailed documentation of traditional knowledge.

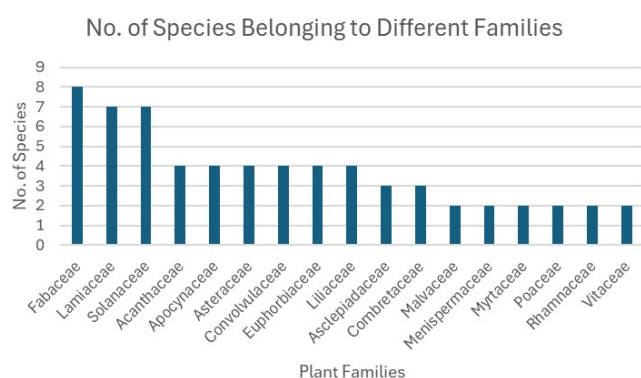
A total of 100 informants (60 men and 40 women), were selected for the study, with 05 informants representing each sampling station. All selected individuals were interviewed during the survey period. The identification and authentication of recorded plant species were carried out using standard floristic and taxonomic references, including *The Flora of British India* (Hooker, 1879), *Indian Medicinal Plants* (Kirtikar & Basu, 1981), *Handbook of Ayurvedic Medicinal Plants* (Kapoor, 1989), *Major Medicinal Plants of India* (Thakur et al., 1989), *Medicinal Plants of India* (Jain & Filips, 1991), *Flora of Madhya Pradesh: Chhatarpur and Damoh* (Roy, 1992), *Flora of Madhya Pradesh* (Mudgal et al., 1997; Singh et al., 2001), and *Medicinal Plants: Traditional Knowledge* (Trivedi, 2006). In addition, plant identification was cross-verified using online databases such as <https://indiabiodiversity.org>, <https://www.gbif.org>, <https://indiaflora-ces.iisc.ac.in>, <http://www.flowersofindia.net>, and <https://efloraofindia.com>.

## Results and Discussion

The present study recorded and documented 97 medicinal plant species belonging to 49 families from the study area, which is considerably higher than the 43 species reported by Gwalwanshi et al. (2014) from remote villages of Panna District, Madhya Pradesh, India. The dominant plant family recorded in the present study



**Figure 1:** Geographical location of Panna (MP) India



**Figure 2:** Relative representation of species across different plant families in surveyed region

was Fabaceae, represented by 8 species, while 7 species each were recorded in Lamiaceae and Solanaceae. Acanthaceae, Apocynaceae, Asteraceae, Convolvulaceae, Euphorbiaceae and Liliaceae were represented by 04 species each, 03 species each were reported in Asclepiadaceae and Combretaceae; however, 02 species each were recorded in Malvaceae, Menispermaceae, Myrtaceae, Poaceae, Rhamnaceae and Vitaceae. The identified number of species belonging to different families is represented in Figure 2.

Analysis of growth habits revealed that herbs constituted the dominant life form, followed by shrubs, trees, and climbers. Herbs and shrubs constituted the majority of the recorded species, while trees and climbers were comparatively fewer; this pattern may be influenced by

**Table 1:** Ethnomedicinal herbs (n = 38 Gen./Sp.) documented from the study area, showing local names, botanical identity, family, parts used, and traditional medicinal uses

| Sr. No. | Local name                | Botanical name                   | Family         | Parts used                    | Traditional medicinal uses/Local information collected in present survey                                                                                    |
|---------|---------------------------|----------------------------------|----------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Latgira/<br>Apamarga      | <i>Achyranthes aspera</i>        | Amaranthaceae  | Leaves, seeds, stem, roots    | Seeds used to reduce swelling, roots diuretic and laxative, stem and leaves paste used in wounds and ulcers, plant also used in hydrophobia                 |
| 2       | Bach                      | <i>Acorus calamus</i>            | Acoraceae      | Rhizome, leaves               | Rhizome and leaves used for gastrointestinal, liver respiratory, neurological, and kidney disorders                                                         |
| 3       | Ghratkumari/<br>Gwarpatha | <i>Aloe vera</i>                 | Liliaceae      | Leaves                        | Gel extract from leaves used for skin conditions like minor cuts, burns, wounds healing, irritations, eczema, psoriasis and gastrointestinal issues         |
| 4       | Kalmegh/<br>Charayata     | <i>Andrographis paniculata</i>   | Acanthaceae    | Whole plant                   | Plant juice/decoction used to treat diabetes, high blood pressure, cold, malaria, dysentery, cancer, and respiratory infections                             |
| 5       | Kala bhangra              | <i>Anisomeles indica</i>         | Lamiaceae      | Whole plant                   | Plant juice/decoction used to treat abdominal pain, colic, rheumatic arthritis, skin sores, dyspepsia, inflammation and allergies                           |
| 6       | Punarnava                 | <i>Boerhavia diffusa</i>         | Nyctaginaceae  | Leaves, whole plant           | Leaves used to treat skin infections, swellings, whole plant used for treating kidney stone, jaundice, diuretic, purify blood and reducing stress           |
| 7       | Patharchatta              | <i>Bryophyllum pinnatum</i>      | Crassulaceae   | Leaves                        | Leaves used for diabetes, intestinal issue, menstrual disorders, ulcers, migraines, arthritis, diuresis, and dissolving kidney stone                        |
| 8       | Ganja                     | <i>Cannabis sativa</i>           | Cannabaceae    | Leaves, seeds, inflorescences | Inflorescences, leaves, and seeds traditionally used as narcotic, also used for treating nervous system disorders, digestive issues, eczema and pain relief |
| 9       | Brahmi                    | <i>Centella asiatica</i>         | Apiaceae       | Leaves, whole plant           | Decoction, powder or pastes useful for improving memory functions, circulation, wound healing and in skin problems                                          |
| 10      | Safed Musli               | <i>Chlorophytum borivillanum</i> | Liliaceae      | Root tuber                    | Root tubers used for increasing sexual desire, erectile dysfunction, athletic performance, osteoarthritis and gonorrhoea                                    |
| 11      | Hurhur                    | <i>Cleome viscosa</i>            | Cleomaceae     | Leaves, seeds, roots          | Leaves, seeds and roots used to treat boils, ulcers, wounds, fever, arthritis, and diarrhoea                                                                |
| 12      | Shankpushpi               | <i>Convolvulus pluricaulis</i>   | Convolvulaceae | Whole plant                   | Used to improve memory and cognitive function and also for nervous disorders like epilepsy, insanity, hysteria and insomnia                                 |
| 13      | Keukand                   | <i>Costus speciosus</i>          | Costaceae      | Rhizome, leaves               | Rhizomes are used as a purgative and to treat coughs, leaves are used to control diabetes                                                                   |

|    |                                |                              |                |                              |                                                                                                                                                               |
|----|--------------------------------|------------------------------|----------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14 | Kali Musli                     | <i>Curculigo orchoides</i>   | Hypoxidaceae   | Root tuber                   | Root tuber used for impotency, aphrodisiac, tonic, jaundice, cough, asthma piles and skin ailments                                                            |
| 15 | Lemon grass                    | <i>Cymbopogon citratus</i>   | Poaceae        | Leaves                       | Leaves used for treat respiratory problems, nervous and gastrointestinal disorders, and for fever                                                             |
| 16 | Nut grass/<br>Nagarmotha       | <i>Cyperus rotundus</i>      | Cyperaceae     | Rhizome                      | Rhizome used to treat digestive issues, skin diseases, fever and menstrual problems                                                                           |
| 17 | Bhringraj                      | <i>Eclipta prostrata</i>     | Asteraceae     | Leaf, whole plant            | Used in traditional medicines, specially for wound healing, oil obtained from leaf used as hair tonic                                                         |
| 18 | Nagajihva                      | <i>Enicostema axillare</i>   | Gentianaceae   | Whole plant                  | Used to treat cough, congestion, fever, hernia, insect poisoning, swelling, diabetes and rheumatism                                                           |
| 19 | Bada dudhi                     | <i>Euphorbia hirta</i>       | Euphorbiaceae  | Leaf, whole plant            | Used in dengue fever, breathing disorders, severe diarrhoea and digestive problems                                                                            |
| 20 | Chhota dudhi                   | <i>Euphorbia prostrata</i>   | Euphorbiaceae  | Leaf, whole plant            | Leave extract effective for treatment of bleeding                                                                                                             |
| 21 | Shankhpushpi<br>(Vishnukranti) | <i>Evolvulus alsinoides</i>  | Convolvulaceae | Whole plant                  | Plant used to treat cold, cough, fever, brain tonic to treat amnesia and neurological disorder                                                                |
| 22 | Musakarni                      | <i>Evolvulus nummularius</i> | Convolvulaceae | Whole plant                  | Used as vegetable and have medicinal importance to treat hysteria, scorpion stings, cuts, fever, wounds and burns                                             |
| 23 | Kalihari                       | <i>Gloriosa superba</i>      | Colchicaceae   | Tuber, seeds                 | Tubers used for treating snake bites, rheumatism arthritis, fever, piles, digestive issues and skin conditions                                                |
| 24 | Dronpushpi                     | <i>Leucas aspera</i>         | Lamiaceae      | Leaves, whole plant          | Plant parts used to treat diabetes, bronchitis, leprosy skin eruptions, rheumatism, and snake bites                                                           |
| 25 | Mahadron/<br>Granthiparni      | <i>Leonotis nepetifolia</i>  | Lamiaceae      | Whole plant                  | The roots, seeds, flower head and whole plant used to treat asthma, bronchitis, fever, poisoning, burns, menstrual pains, ringworm and itchy skin diseases    |
| 26 | Pudina                         | <i>Mentha arvensis</i>       | Lamiaceae      | Whole plant                  | Leaves used for indigestion, diarrhoea, dysentery, cold, cough and asthma                                                                                     |
| 27 | Opium poppy                    | <i>Papaver somniferum</i>    | Papaveraceae   | Latex, seeds                 | Opium (latex) is used for treating diarrhoea, dysentery, inducing sleep and as a painkiller.                                                                  |
| 28 | Bhumi Amla                     | <i>Phyllanthus amarus</i>    | Phyllanthaceae | Whole plant                  | The whole plant is used for treating ulcers, wounds, jaundice, dysentery, diarrhoea, menorrhagia, and gonorrhoea.                                             |
| 29 | Chitrak                        | <i>Plumbago zeylanica</i>    | Plumbaginaceae | Leaves, root                 | Leaves, root and root bark are used for the treatment of intestinal trouble, piles, dysentery, inflammation, leukoderma, and bronchitis.                      |
| 30 | Vidarikand                     | <i>Pueraria tuberosa</i>     | Fabaceae       | Root tuber                   | Tuber is used for the treatment of fever, menorrhagia, skin disease, wounds, asthma and jaundice.                                                             |
| 31 | Makoy                          | <i>Solanum nigrum</i>        | Solanaceae     | Leaves, fruit                | Leaves juice and poultices used to treat ulcers, scabies, ringworm, burns, vitiligo, swelling, cough and asthma                                               |
| 32 | Kateri                         | <i>Solanum xanthocarpum</i>  | Solanaceae     | Fruit, leaves, roots         | Roots used for asthma, cough, and chest pain, leaf juice or decoctions for ulcers, persistent malaria, syphilis, and piles                                    |
| 33 | Gorakhmundi                    | <i>Sphaeranthus indicus</i>  | Asteraceae     | Root, root oil and root bark | Roots decoction is used for cough and chest pain, root oil for jaundice and glandular swellings, and root bark powder for piles                               |
| 34 | Gokharu                        | <i>Tribulus terrestris</i>   | Zygophyllaceae | Fruit                        | Fruit used as an aphrodisiac, diuretic, and tonic                                                                                                             |
| 35 | Ghamra                         | <i>Tridax procumbens</i>     | Asteraceae     | Whole plant                  | Whole plant used in wound healing, oil for healthy hairs                                                                                                      |
| 36 | Jangalipyaj                    | <i>Urginea indica</i>        | Liliaceae      | Bulb                         | Bulb used to treat dysmenorrhea, skin diseases, respiratory diseases, cough, rhinitis, and intestinal worms.                                                  |
| 37 | Sahdevi                        | <i>Vernonia cinerea</i>      | Asteraceae     | Whole plant, leaves, roots   | The whole plant is used to treat gastrointestinal issues, stomach pain, fever, diarrhoea, kidney disorders, and eye infections.                               |
| 38 | Khas-Khas                      | <i>Vetiveria zizanioides</i> | Poaceae        | Roots                        | Root paste or oil is used for rheumatism, sprains, burns, snakebites, and scorpion stings, root extracts for fever, root decoctions used to improve digestion |

**Table 2:** Ethnomedicinal shrubs (n=24 Gen., 26 sp.) recorded from the study area, showing local names, botanical identity, family, plant parts used, and traditional medicinal uses

| Sr. No. | Local name                                 | Botanical name                                    | Family         | Parts used                   | Traditional medicinal uses/Local information collected in the present survey                                                                                                                                                       |
|---------|--------------------------------------------|---------------------------------------------------|----------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Ban Bhindi                                 | <i>Abelmoschus crinitus</i>                       | Malvaceae      | Leaves, seeds                | Leaf decoction used for intestinal problems and vomiting, seeds used for intestinal issues, dyspepsia, constipation and to treat snake poisoning                                                                                   |
| 2       | Kanghi                                     | <i>Abutilon indicum</i>                           | Malvaceae      | Root, leaves                 | Root and leaves used in fever and curing piles                                                                                                                                                                                     |
| 3       | Adusa/Vasaka                               | <i>Adhatoda vasica</i>                            | Acanthaceae    | Leaves, flowers, roots       | Leaves juice, decoctions, and powders used to treat bronchitis, coughs, and asthma, roots and flowers along with leaves also used for respiratory issues, plant also used in treating fever, skin diseases, and bleeding disorders |
| 4       | Vajradanti/ Bluebell barleria (undershrub) | <i>Barleria cristata</i>                          | Acanthaceae    | Whole plant                  | Plant used in cough, asthma and bronchitis, reduce swellings, inflammation, snakebites and chewed for relief in toothache                                                                                                          |
| 5       | Aak/Madar                                  | <i>Calotropis procera</i> ,<br><i>C. gigantea</i> | Asclepiadaceae | Leaves, root, flower, latex  | Leaves used as poultice for skin diseases and wound healing, flowers, root bark and latex used for arthritis, rheumatism, asthma, cold, coughs and digestive issue antidote for snakebites                                         |
| 6       | Dadmari/ Ringworm bush                     | <i>Cassia alata</i>                               | Fabaceae       | Leaves                       | Leaves traditionally used for skin disease like eczema, itching and fungal infections                                                                                                                                              |
| 7       | Chakunda/ Chakramard                       | <i>Cassia tora</i>                                | Fabaceae       | Whole plant                  | Leaf poultice used for eczema and ringworm, seeds laxative and diuretic used to reduce blood pressure, and to improve vision                                                                                                       |
| 8       | Datura                                     | <i>Datura metel</i> ,<br><i>D. stramonium</i>     | Solanaceae     | Flowers, seeds               | Used to treat cough, tuberculosis and bronchitis, relieves pain and encourages healing                                                                                                                                             |
| 9       | Kakajangha/ Pittpapada                     | <i>Dicliptera paniculata</i>                      | Acanthaceae    | Leaves, whole plant          | Plant used to treat inflammation, wounds, bone fracture, fever, diarrhoea, and tuberculosis                                                                                                                                        |
| 10      | Vayvidang/ Vidanga                         | <i>Embelia ribes</i>                              | Myrsinaceae    | Fruits, leaves, roots        | Fruits useful in ulcer, de-worming the intestine etc., plant pastes useful in eczema and ringworm                                                                                                                                  |
| 11      | Goodsakari/ Nagbala                        | <i>Grewia hirsuta</i>                             | Tiliaceae      | Roots, leaves and fruits     | Roots used in formulations like "Dashmularishta", root paste used in skin infections, leaves for body pain, ripe fruit used to treat dysentery and diarrhoea                                                                       |
| 12      | Lajvanti/Chhui-mui                         | <i>Mimosa pudica</i>                              | Fabaceae       | Leaves, roots                | Leaves and roots are used in traditional medicines to reduce pain and urinary tract infections                                                                                                                                     |
| 13      | Wild basil/ Maruadana                      | <i>Ocimum gratissimum</i>                         | Lamiaceae      | Leaves, stem                 | Leaves/leaf juice is used for malaria fever, coughs, skin infection, snake bites, and headaches                                                                                                                                    |
| 14      | Tulsi/Holy basil                           | <i>Ocimum sanctum</i>                             | Lamiaceae      | Leaves, stem, flowers, roots | Leaves used in decoction, tea and traditional medicines for bronchial asthma, bronchitis, malaria, skin diseases, diarrhoea, dysentery                                                                                             |
| 15      | Pedhakua/ Rasbhari                         | <i>Physalis pruinosa</i>                          | Solanaceae     | Leaves, roots, fruits        | Leaves and root poultice applied for wounds, ripened fruits edible, used to treat coughs and sore throats                                                                                                                          |
| 16      | Sarpgandha                                 | <i>Rauvolfia serpentina</i>                       | Apocynaceae    | Root, rhizome                | Roots and rhizome used to treat hypertension, mental disorders, and insomnia, also used for fever, gastrointestinal issue and snakebites                                                                                           |
| 17      | Arandi                                     | <i>Ricinus communis</i>                           | Euphorbiaceae  | Leaves, seeds, root          | Leaves poultice applied for wounds, sores and increasing milk production, oil used for pain and inflammation                                                                                                                       |
| 18      | Kumarika/ Ramdatun                         | <i>Smilax zeylanica</i>                           | Smilacaceae    | Leaves, stem, roots, fruits  | Leaves, stem, roots, and fruits used to treat skin diseases, rheumatism, arthritis, syphilis, dysentery and venereal diseases                                                                                                      |
| 19      | Bitter brinjal/ Ban baigan                 | <i>Solanum incanum</i>                            | Solanaceae     | Fruits, leaves, roots        | Leaf and root decoctions used to treat stomach aches, sore throats, and painful menstruation, fruits applied for skin diseases, sores and wounds                                                                                   |
| 20      | Nirgundi                                   | <i>Vitex negundo</i>                              | Verbenaceae    | Leaves, roots, bark, seeds   | Leaf extracts used for treating pain, inflammation and skin problems, decoctions for coughs and colds                                                                                                                              |

|    |                |                             |             |                             |                                                                                                            |
|----|----------------|-----------------------------|-------------|-----------------------------|------------------------------------------------------------------------------------------------------------|
| 21 | Ashwagandha    | <i>Withania somnifera</i>   | Solanaceae  | Leaves, root, fruit         | Leaves, root and fruit used to treat asthma, arthritic diseases, diabetes, stress, cancer and hypertension |
| 22 | Dhawai/Dhataki | <i>Woodfordia fruticosa</i> | Lythraceae  | Flowers, leaves, bark       | Flowers or leaves used to treat dysentery, diarrhoea, fever and various infections                         |
| 23 | Dudhi/Indrajau | <i>Wrightia tinctoria</i>   | Apocynaceae | Leaves, bark, seeds         | Leaves used to treat psoriasis, eczema, wounds, bark for diarrhoea, dysentery and psoriasis                |
| 24 | Ghont          | <i>Zizyphus xylopyrus</i>   | Rhamnaceae  | Leaves, bark, roots, fruits | Roots used for pain relief and to treat dysentery, leaves and bark used to treat respiratory issues        |

their greater accessibility and representation during documentation. Correspondingly, various plant parts were utilized in indigenous healthcare practices, with leaves being the most frequently used plant part, followed by roots, fruits, seeds, bark, flowers, and, in some instances, the whole plant. The predominance of leaves as the most frequently utilized plant part in the present study may be attributed to their widespread availability across different growth forms and the comparatively sustainable nature of harvesting, as it does not involve the destruction of the entire plant.

The documented medicinal plants were found to be extensively used in the treatment of a wide range of human ailments by the local communities. These applications included the management of skin-related conditions such as minor cuts, burns, irritations, wounds, ulcers, eczema, psoriasis, leukoderma, syphilis, and leprosy. Gastrointestinal disorders commonly treated with herbal remedies include dysentery, diarrhea, peptic ulcers, constipation, vomiting, and dyspepsia. Respiratory ailments such as cold, bronchitis, cough, asthma, and tuberculosis were also frequently addressed

**Table 3:** Ethnomedicinal trees (n = 18 Gen./Sp.) recorded from the study area, showing local names, botanical identity, family, plant parts used, and traditional medicinal uses

| Sr. No. | Local name        | Botanical name                                             | Family         | Parts used                    | Traditional medicinal uses/Local information collected in present survey |
|---------|-------------------|------------------------------------------------------------|----------------|-------------------------------|--------------------------------------------------------------------------|
| 1       | Bel (Bael)        | <i>Aegle marmelos</i>                                      | Rutaceae       | Fruits, leaves                | Used for dysentery, diarrhoea, peptic ulcers, fever, urinary problems    |
| 2       | Neem              | <i>Azadirachta indica</i>                                  | Meliaceae      | Leaves, bark, fruits, seeds   | Used for skin diseases, wound healing, oral hygiene, intestinal worms    |
| 3       | Kasai/Khaja       | <i>Bridelia retusa</i>                                     | Euphorbiaceae  | Bark, leaves, fruits          | Used for urinary infections, wound healing, rheumatism                   |
| 4       | Kumbhi            | <i>Careya arborea</i>                                      | Myrtaceae      | Bark, leaves, flowers, fruits | Used for skin diseases, bronchitis, diarrhoea, snakebite                 |
| 5       | Chilla/Tondree    | <i>Casearia tomentosa</i>                                  | Samydaceae     | Bark, root bark, fruits       | Used for diabetes, skin disorders, gastric ulcers, malaria               |
| 6       | Amaltas           | <i>Cassia fistula</i>                                      | Fabaceae       | Fruit pulp, leaves, roots     | Used for constipation, jaundice, skin diseases                           |
| 7       | Dahiman           | <i>Cordia macleodii</i>                                    | Boraginaceae   | Leaves, bark                  | Used for wound healing, jaundice, hypertension                           |
| 8       | Amla              | <i>Emblica officinalis</i> Syn. <i>Phyllanthus emblica</i> | Phyllanthaceae | Fruits, leaves, bark          | Used for immunity, diabetes, jaundice, digestive disorders               |
| 9       | Nilgiri           | <i>Eucalyptus</i> sp.                                      | Myrtaceae      | Leaves, oil                   | Used for cough, cold, muscle pain, aromatherapy                          |
| 10      | Gambhari          | <i>Gmelina arborea</i>                                     | Lamiaceae      | Roots                         | Used in Dashamula, fever, digestive disorders                            |
| 11      | Khirmi            | <i>Manilkara hexandra</i>                                  | Sapotaceae     | Bark, leaves, fruits          | Used for fever, jaundice, arthritis, digestive disorders                 |
| 12      | Harsingar/Parijat | <i>Nyctanthes arbor-tristis</i>                            | Oleaceae       | Leaves, flowers, bark         | Used for malaria, rheumatism, liver disorders                            |
| 13      | Mrigsinghi        | <i>Pistacia integerrima</i>                                | Anacardiaceae  | Leaf galls                    | Used for cough, asthma, diarrhoea, fever                                 |
| 14      | Putrajeevak       | <i>Putranjiva roxburghii</i>                               | Putranjivaceae | Leaves, fruits, seeds         | Used for infertility, rheumatism, genital disorders                      |
| 15      | Katul/Pindalu     | <i>Randia uliginosa</i>                                    | Rubiaceae      | Fruits, leaves, roots         | Used for cholera, diarrhoea, migraine                                    |
| 16      | Arjun             | <i>Terminalia arjuna</i>                                   | Combretaceae   | Bark                          | Used for cardiac disorders, blood pressure                               |
| 17      | Bahera            | <i>Terminalia bellirica</i>                                | Combretaceae   | Fruits, bark, seed oil        | Used in Triphala, anemia, rheumatism                                     |
| 18      | Harad             | <i>Terminalia chebula</i>                                  | Combretaceae   | Fruits                        | Used in Triphala, digestion, constipation                                |

**Table 4:** Ethnomedicinal climbers (n=15 Gen./Sp.) recorded from the study area, showing local names, botanical identity, family, plant parts used, and traditional medicinal uses.

| Sr. No. | Local name                    | Botanical name                | Family         | Parts used              | Traditional medicinal uses/Local information collected in present survey               |
|---------|-------------------------------|-------------------------------|----------------|-------------------------|----------------------------------------------------------------------------------------|
| 1       | Ghav bel/<br>Elephant creeper | <i>Argyreia nervosa</i>       | Convolvulaceae | Roots, leaves           | Used for chronic ulcers, rheumatism, gonorrhoea; leaf poultice for sores and swellings |
| 2       | Shatavar                      | <i>Asparagus racemosus</i>    | Liliaceae      | Roots                   | Used for fertility, lactation, gastric ulcers, diarrhoea, immunity                     |
| 3       | Mahul bel                     | <i>Bauhinia vahlii</i>        | Fabaceae       | Leaves, bark, roots     | Used for wound healing, jaundice, diabetes, ulcers, obesity                            |
| 4       | Amlaparni/<br>Amalbel         | <i>Cayratia trifolia</i>      | Vitaceae       | Roots, seeds            | Used for fever, ulcers, cardiac disorders, wounds                                      |
| 5       | Hadjod                        | <i>Cissus quadrangularis</i>  | Vitaceae       | Stem                    | Used for bone fracture healing, joint pain, inflammation                               |
| 6       | Aprajita                      | <i>Clitoria ternatea</i>      | Fabaceae       | Roots, seeds            | Used as memory enhancer, anxiolytic, antidepressant                                    |
| 7       | Patalgarudi                   | <i>Cocculus hirsutus</i>      | Menispermaceae | Leaves, roots           | Used for fever, rheumatism, skin and stomach disorders                                 |
| 8       | Shivlingi                     | <i>Diplocyclos palmatus</i>   | Cucurbitaceae  | Leaves, seeds, roots    | Used for diabetes, female infertility, jaundice, snakebite                             |
| 9       | Gudmar                        | <i>Gymnema sylvestre</i>      | Apocynaceae    | Leaves, roots, stem     | Used to control blood sugar, diabetes, suppress sweet taste                            |
| 10      | Anantamul                     | <i>Hemidesmus indicus</i>     | Asclepiadaceae | Roots                   | Used for skin diseases, asthma, urinary and blood disorders                            |
| 11      | Marodfali/Enthi               | <i>Helicteres isora</i>       | Sterculiaceae  | Fruits, stem, root bark | Used for colic, dysentery, gastric disorders                                           |
| 12      | Kali-dudhi/<br>Dhimar bel     | <i>Ichnocarpus frutescens</i> | Apocynaceae    | Roots                   | Used for rheumatism, asthma, cholera, fever                                            |
| 13      | Kevanch                       | <i>Mucuna pruriens</i>        | Fabaceae       | Seeds, leaves, roots    | Used for nervous disorders, male fertility, Parkinson's disease                        |
| 14      | Gurch/Giloy                   | <i>Tinospora cordifolia</i>   | Menispermaceae | Stem, leaves            | Used for fever, diabetes, jaundice, immunity                                           |
| 15      | Lal-beli/Kewati<br>bel        | <i>Ventilago calyculata</i>   | Rhamnaceae     | Stem bark               | Used for bone fracture, wound healing, sprains                                         |

using traditional plant-based medicines. In addition, several species were reported to be used in the treatment of malaria, fever, piles, swellings, liver disorders, jaundice, neurological disorders, including migraine, epilepsy, insanity, hysteria, and insomnia, as well as kidney-related problems such as kidney disorders, kidney stones, urinary complaints, and abdominal pain. Furthermore, medicinal plants such as *Cissus quadrangularis*, *Gloriosa superba*, *Withania somnifera*, *Ventilago calyculata*, and *Vetiveria zizanioides* have been employed for the treatment of bone and joint ailments, including bone fractures, arthritis, rheumatism, gout, sprains, and sciatica. Traditional remedies were also used to manage cardiovascular conditions such as bleeding disorders, high blood pressure, and elevated blood urea levels. A number of plant species were utilized in the management of female reproductive health issues, including regulation of the menstrual cycle, dysmenorrhea, pregnancy-related conditions, lactation, and infertility, while male reproductive disorders such as erectile dysfunction, semen disorders, impotency, and gonorrhoea were also treated. Additionally, medicinal

plants were used for enhancing immunity and for the treatment of diabetes, cancer, snakebites, scorpion stings, herpes, mumps, toothache, and gum-related problems. Comprehensive details of the recorded medicinal plants, including their vernacular and botanical names, family, parts used, and ailments treated, are provided in Tables 1 to 4.

## Conclusion and Future Recommendation

Local villagers, Vaidya/hakim and tribes are the repository of accumulated experience and knowledge about traditional uses of medicinal plants, which is passed down to them orally from generation to generation. Documentation will preserve the traditional knowledge and provide novel information about the ethnomedicinal uses of plants. It will create awareness among the local community about the conservation of native medicinal flora and also be helpful in the pharmacological screening of plants for drug development for the welfare of human beings. Identification of total 97 medicinal plant species belonging to 49 families from the study area shows that there is high potential available for medicinal plants to

be used in treatment purpose of human beings in any system of medicine, such as Folk medicine, Ayurveda, Siddha, Unani, Homeopathy, Allopathy and others. There is a requirement of proper utilization of this medicinal property for human betterment without causing any challenges of their sustainability. Analysis of the life forms of the recorded medicinal plants reveals that herbs (38 species, 39.18%) are dominant, followed by shrubs (26 species, 26.80%), trees (18 species, 18.56%), and climbers (15 species, 15.46%). This is in accordance with the interaction of local people with their surrounding plant resources. The dominance of herbaceous plants can be attributed to their easy accessibility, rapid growth, and simple processing and preparation, making them the best for primary health care at the local level. Analysis of the plant parts used reveals that leaves are more preferred, which is an indication of sustainable use of the plant resources by the local communities. The less frequent use of roots, bark, and underground plant parts indicates a cautious approach to the perennial plants, which shows an understanding of resource conservation.

The above results emphasize the importance of herb conservation, promoting sustainable use of wood-based medicinal plants, and documenting local knowledge to preserve both biological and cultural resources in the region. It is also recommended that further pharmacological and phytochemical analysis is required to evaluate bioactive compounds in identified medicinal plants. Conservation efforts strongly required for overharvested species. Transfer of traditional knowledge on the application of plants for healthcare practices to new generations and their integration into local health services is also recommended.

### Author Contributions

Manoj Kumar contributed to conceptualization, supervision, validation, formal analysis, and acquisition of the resources and their management. Manoj Kumar also wrote the first manuscript draft and finalized the manuscript revision. Manisha Sharma contributed to editing, revisions and proofreading of the manuscript.

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### Conflict of Interest

Authors declare no conflict of interest.

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