

Diversity of Ethnomedicinal Plants and Plant Parts Used for Piles in Mahoba District, Uttar Pradesh, India

Dr. Vinay Kumar Prajapati ^{1,*}

¹ Department of Botany, Government Degree College, Haripur Nihastha, Raibareli-UP
dr.vinayalld@gmail.com

*Corresponding author

Abstract: Piles, also known as haemorrhoids, represent a common anorectal condition for which traditional plant-based remedies continue to be used in various communities. Ethnobotanical documentation of medicinal plants used for this condition is important for preserving indigenous knowledge and identifying potential avenues for future pharmacological research. The present study documents the diversity of ethnomedicinal plants traditionally used for the treatment of piles in Mahoba District, Uttar Pradesh, India. The recorded dataset comprises 18 plant species belonging to 18 genera and 16 families. Fabaceae and Asteraceae are represented by two and three species, respectively, while the remaining families account for the other recorded taxa. Analysis of plant parts used in traditional remedies indicates that leaves and roots are the most frequently represented parts, with seven species recorded for each. Seeds are used in five species, whole plants in three, latex in two, and stems and bulbs in one species each. These findings indicate the diversity of plant resources and plant parts associated with traditional remedies for piles in the study area. The documentation of these practices may contribute to the conservation of traditional ethnomedicinal knowledge and provide a basis for future investigations into the phytochemical composition, safety, and therapeutic potential of the recorded plants. Further research involving botanical authentication, systematic documentation of preparation methods, dosage, and scientific evaluation is necessary to establish the efficacy and safety of these traditional remedies.

Keywords: Ethnobotany; medicinal plants; piles; haemorrhoids; traditional knowledge; plant parts; Mahoba; Uttar Pradesh.

1. INTRODUCTION

Piles, clinically known as haemorrhoids, are a common anorectal condition associated with symptoms such as rectal bleeding, discomfort, itching, and swelling. The condition can affect daily activities and quality of life, making its management an important aspect of healthcare (Lohsiriwat, 2012; Sun & Migaly, 2016). In many rural communities, traditional medicinal practices continue to contribute to local healthcare, particularly where access to modern medical facilities may be limited. Medicinal plants have historically played an important role in traditional healthcare systems, with knowledge of their applications accumulated and transmitted across generations (Jain, 1991; Kala et al., 2006).

India is characterized by rich floristic diversity and a long-standing tradition of plant-based healthcare. Ethnobotanical investigations provide valuable insights into the relationships between local communities and plant resources, including the identification, preparation, and traditional applications of medicinal plants (Jain, 1964; Cotton, 1996). The documentation of this knowledge is important for understanding medicinal plant diversity, cultural practices, and the traditional healthcare systems prevalent in different geographical regions. Furthermore, ethnobotanical studies can provide a foundation for investigating plant resources that may warrant further phytochemical and pharmacological evaluation (Kala et al., 2006).

The Bundelkhand region of Uttar Pradesh represents a distinctive geographical landscape characterized by rocky terrain, seasonal variations in rainfall, and relatively dry climatic conditions. Mahoba district, situated within this region, provides an important setting for investigating the traditional applications of medicinal plants. Local communities may possess knowledge of plant-based remedies used for various health conditions, including piles. Systematic documentation of these practices can contribute to an

understanding of regional ethnomedicinal diversity and the relationship between locally available plant resources and traditional healthcare knowledge (Jain, 1991; Cotton, 1996).

Traditional knowledge concerning medicinal plants is frequently transmitted orally between generations and may vary according to local plant availability, cultural practices, and community experience. Such knowledge can be vulnerable to loss when it is not systematically documented. Ethnobotanical investigations of plants traditionally used for piles can therefore provide valuable information about medicinal species, their botanical families, and the plant parts employed in remedy preparation. Documentation of these practices does not, by itself, establish clinical efficacy or safety; rather, it provides a basis for subsequent scientific investigation of the documented species.

In this context, the present study aims to document the diversity and traditional knowledge of medicinal plants used for the management of piles in Mahoba district, Bundelkhand region, Uttar Pradesh, India. The study focuses on the taxonomic diversity of the recorded species, their representation across botanical families, and the plant parts used in traditional remedies. The findings provide a systematic account of locally documented ethnomedicinal knowledge and contribute to the documentation and conservation of traditional plant-based healthcare practices.

2. MATERIALS AND METHODS

2.1. Study Area

Mahoba district is situated in the Bundelkhand region of south-western Uttar Pradesh, India. The broader Bundelkhand region encompasses the districts of Banda, Hamirpur, Mahoba, Jhansi, Lalitpur, and Jalaun in Uttar Pradesh, together with adjoining areas of Madhya Pradesh.

Mahoba district is located approximately at 25°18' N latitude and 79°53' E longitude and covers a geographical area of about 3,071 km². It is bordered by Hamirpur district to the north, Banda district to the east, Madhya Pradesh to the south, and Jhansi district to the west.

The district is characterized by rocky terrain, seasonal water availability, variable rainfall, and predominantly semi-arid climatic conditions. These environmental characteristics influence local vegetation patterns and support plant species adapted to comparatively dry habitats. The region's plant resources and traditional knowledge provide an appropriate context for ethnobotanical investigation.

The present study focuses on medicinal plants traditionally used for the management of piles in

Mahoba district. The geographical and ecological characteristics of the district provide the regional context for documenting medicinal plant diversity and associated traditional healthcare practices.

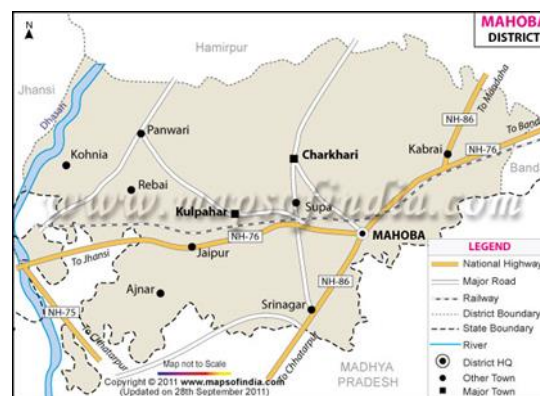


Figure 1. Location of Mahoba district in the Bundelkhand region of Uttar Pradesh, India.

2.2. Data Collection

Ethnobotanical information concerning medicinal plants traditionally used for the management of piles was documented through field surveys conducted in different villages of Mahoba district. Information was obtained from local healers, traditional practitioners, elderly residents, and other knowledgeable informants familiar with plant-based remedies. Semi-structured questionnaires and personal interviews were employed to record information regarding the local names of medicinal plants, plant parts used, and their reported traditional applications in piles management.

Where information was available, details concerning the methods of preparation and administration of plant-based remedies were also recorded. The collected information was organized systematically to facilitate the assessment of medicinal plant diversity, taxonomic representation, and patterns of plant-part utilization. Established ethnobotanical approaches were followed during the collection and documentation of information (Jain, 1964; Cotton, 1996).

2.3. Plant Identification

Plant specimens associated with the recorded ethnomedicinal information were collected during field surveys and processed using conventional botanical collection and herbarium techniques. The specimens were pressed, dried, mounted, and prepared for taxonomic examination following established procedures (Jain & Rao, 1977). Plant identification was undertaken with reference to relevant taxonomic literature and herbarium resources.

Voucher specimens supporting the study were deposited in the Duthie Herbarium (DUTHIE),

Department of Botany, University of Allahabad, Prayagraj, India.

The documented ethnomedicinal information was compared with available published literature to examine previously reported medicinal applications of the recorded species and identify uses that may be underrepresented in existing documentation (Jain, 1991). The information was arranged systematically according to botanical name, family, local name, plant characteristics, locality, collection number, plant parts used, and traditional applications, wherever the relevant data were available.

The resulting dataset was used to assess the taxonomic composition of the recorded medicinal plants and the distribution of plant parts employed in traditional remedies for piles. The analysis provides a descriptive account of the documented ethnomedicinal resources of Mahoba district.

3. RESULTS

3.1. Taxonomic Diversity of Ethnomedicinal Plants Used for Piles

The present study documented 18 medicinal plant species belonging to 18 genera and 16 botanical families traditionally used for the management of piles in Mahoba district, Uttar Pradesh, India. The recorded species represented a diverse range of botanical families, indicating the taxonomic breadth of the documented ethnomedicinal resources. Fabaceae was represented by two species, whereas Asteraceae comprised three species. The remaining families accounted for the other recorded species. The representation of medicinal plants across multiple families indicates that traditional remedies for piles draw upon a variety of botanical resources.

3.2. Diversity of Plant Parts Used

Analysis of the recorded plant parts revealed that leaves and roots were among the most frequently utilized plant parts, with seven species recorded for each category. Seeds were used in five species, while the whole plant was utilized in three species. Latex was reported for two species, whereas stems and bulbs were each represented by one species.

The distribution of plant parts indicates that different plant structures are incorporated into traditional remedies for piles. Leaves and roots were the most frequently represented categories in the recorded dataset, followed by seeds and whole plants. Latex, stems, and bulbs contributed to a comparatively smaller proportion of the documented plant-part uses.

Table 1. Taxonomic diversity and plant parts of medicinal plants traditionally used for piles in Mahoba district, Uttar Pradesh, India.

Parameter	Recorded value
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Parameter	Recorded value
Total species	18
Total genera	18
Total families	16
Species in Fabaceae	2
Species in Asteraceae	3

Table 2. Distribution of plant parts used in traditional remedies for piles.

Plant part	No. of species	Percentage*
Leaves	7	26.92%
Roots	7	26.92%
Seeds	5	19.23%
Whole plant	3	11.54%
Latex	2	7.69%
Stem	1	3.85%
Bulb	1	3.85%
Total plant-part records	26	100%

Percentages are calculated using 26 total plant-part records as the denominator. These are percentages of recorded plant-part uses, not necessarily percentages of unique species, because individual species may contribute more than one plant part.

4. DISCUSSION

The present study documents 18 medicinal plant species belonging to 18 genera and 16 families that are traditionally used for the management of piles in Mahoba district, Uttar Pradesh. The recorded taxonomic diversity highlights the variety of plant resources associated with traditional healthcare practices in the Bundelkhand region. The occurrence of species from several botanical families suggests that traditional knowledge concerning piles is not restricted to a single taxonomic group. Fabaceae and Asteraceae were represented by two and three species, respectively, while the remaining species were distributed among other families. However, the ecological or medicinal significance of these family-level patterns requires further investigation using species-level information and comparative ethnobotanical data.

The distribution of plant parts showed that leaves and roots were the most frequently recorded categories, each represented by seven species. Seeds were used in five species, followed by whole plants in three species. Latex was reported for two species, while stems and bulbs were each represented by one species. The prominence of leaves may reflect their availability and suitability for collection and preparation in traditional remedies. Root use may indicate the importance of below-ground plant structures in local medicinal practices. Nevertheless, these explanations should be considered possible interpretations rather than demonstrated causes,

because the present dataset does not provide information about harvesting preferences, seasonal availability, or preparation methods.

The use of multiple plant parts also demonstrates the diversity of traditional approaches to remedy preparation. At the same time, harvesting roots and whole plants can potentially affect plant survival, particularly when collection involves destructive extraction. Sustainable harvesting practices and conservation-oriented documentation may therefore be important considerations for medicinal species used locally.

Overall, this study provides baseline documentation of medicinal plant diversity and plant-part utilization associated with traditional piles management in Mahoba district. Further research should incorporate informant consensus, frequency of citation, preparation methods, dosage information, botanical authentication, and comparison with published ethnobotanical literature. Phytochemical, toxicological, and clinical investigations would also be necessary before making claims about the efficacy or safety of the recorded remedies.

Table 3. Ethnomedicinal plant diversity and plant parts used for the management of piles in Mahoba district, Uttar Pradesh, India.

S.No	Botanical Name	Common Name	Family	Field Number	Part Used
1.	<i>Corchorus olitorius</i> L.	Sanai	Fabaceae	233	Leaves
2.	<i>Semecarpus anacardium</i> Lf.	Nhelwa	Anacardiaceae	372	Seed
3.	<i>Trigonella foenum-graecum</i> L.	Methi	Fabaceae	137	Seed, Whole plant
4.	<i>Carica papaya</i> L.	Papita	Caricaceae	298	Seed, Latex
5.	<i>Ageratum conyzoides</i> L.	Gandhaua	Areraceae	250	Leaves, Whole plant
6.	<i>Vernonia cinerea</i> (Linn) Lesso	Sahadevi	Asteraceae	145	Stem, Seed
7.	<i>Xanthium strumarium</i> L.	Kat katauni	Asteraceae	62	Seed, Leaves
8.	<i>Solanum melongena</i> L.	Baigun	Solanaceae	262	Fruit, Root
9.	<i>Orthosiphon pallidus</i> Royle. ex. Benth.	Tuk Malanga	Lamiaceae	236	Whole plant, Leaves
10.	<i>Mirabilis jalapa</i> L.	Gulabans	Nyctaginaceae	197	Root
11.	<i>Amaranthus spinosus</i> Linn.	Katli Chaulai	Amaranthaceae	152	Root
12.	<i>Euphorbia thymifolia</i> Linn.	Chhoti-dudhi	Euphorbiaceae	8	Latex, Leaves
13.	<i>Cannabis sativa</i> Linn.	Bhang	Cannabinaceae	169	Leaves
14.	<i>Ficus religiosa</i> L.	Peepal	Moraceae	28	Root
15.	<i>Dioscorea bulbifera</i> Linn.	Ratalu	Dioscoreaceae	363	Root
16.	<i>Allium cepa</i> L.	Pyaz	Liliaceae	382	Leaves, Bulb
17.	<i>Amorphophallus campanulatus</i> L.	Suran	Araceae	292	Root
18.	<i>Ageratum conyzoides</i> L.	Gandhaua	Asteraceae	250	Root

5. ACKNOWLEDGMENT

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