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Ethnobotanical Study on Medicinal Plants Traditionally used for The Treatment of Asthma in Sehore District (M.P.), India

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ABSTRACT
Asthma is a chronic respiratory disease that affects millions of people worldwide, particularly in developing regions where access to modern healthcare is limited. Traditional medicine plays a crucial role in managing asthma, especially in rural areas like Sehore District, Madhya Pradesh, India, where indigenous knowledge of medicinal plants is deeply rooted in local communities. This study aims to document and analyze the ethnobotanical practices associated with asthma treatment in nearest ofSehoreDistrict. Field surveys, interviews with traditional healers, and direct plant observations were conducted to identify plant species used in asthma management. The study recorded multiple plant species belonging to different families, commonly prepared as decoctions, powders, and pastes. The therapeutic properties of these plants are attributed to their bioactive compounds, including alkaloids, flavonoids, and saponins, which exhibit bronchodilatory, anti-inflammatory, and expectorant properties. The findings highlight the significance of conserving these medicinal plants and integrating traditional knowledge with modern healthcare practices to develop potential herbal remedies for asthma. Further pharmacological validation and phytochemical studies are recommended to scientifically substantiate the efficacy and safety of these traditional treatments.

KEYWORDS
Medicinal Plants, Traditional healers,Plant-based medicine, Bioactive compounds and Asthma.

1. INTRODUCTION
Asthma is a chronic inflammatory disease of the airways that causes breathing difficulties, wheezing, coughing, and shortness of breath. It is a significant global health concern, affecting millions of people, particularly in developing regions where access to conventional medical treatment is limited. In India, asthma prevalence has been steadily increasing due to environmental pollution, genetic predisposition, and lifestyle changes. Many rural populations continue to rely on traditional medicinal systems, such as Ayurveda and local herbal remedies, for managing asthma symptoms (GBD, 2019).

Sehore District, located in the central part of Madhya Pradesh, spans an area of 6,578 square kilometers and lies between 22°44′ to 23°37′ North latitude and 76°45′ to 77°51′ East longitude. The district exhibits diverse topographical features including plains, hills, and river valleys, creating varied microhabitats that support rich plant diversity(Patidar and Ahmad,2024).The rich biodiversity of the region has sustained a long-standing relationship between the indigenous population and the diverse plant species, leading to the development of aappreciated repository of traditional curative practices(Gour and Mohabe, 2024).

This study aims to document and analyze medicinal plants traditionally used to treat asthma in Sehore district. Through ethnobotanical surveys and interviews with traditional healers and local doctors, we aim to identify commonly used plant species, their preparation methods, and their therapeutic effects. Additionally, this study highlights the need to conserve these medicinal plants and encourages further pharmacological research to validate their efficacy and safety.

Integrating traditional knowledge with modern medicine may open new avenues for developing affordable and effective treatments for asthma, benefiting rural and urban communities as well as the broader scientifically.

2. METHODOLOGY

2.1 Study Area:

The study was conducted in diverse places of Sehore District, Madhya Pradesh, India, a region known for its diverse flora and rich tradition of herbal medicine. The district is home to various ethnic groups, tribal communities, and traditional healers who have preserved indigenous knowledge of medicinal plants for generations.

2.2Plant Specimen Collection and Identification:

Plant samples were collected from different ecological zones of Sehore District of Madhya Pradesh. The collected specimens were identified with the help of local taxonomist and authenticated using standard taxonomic literature and herbarium references.

2.3 Data Collection:

A combination of ethnobotanical surveys, semi-structured interviews and field observations was employed to gather information on medicinal plants used for asthma treatment.

Selection of Participants:

Traditional healers, local herbalists, elderly community members, and Ayurvedic practitioners were identified through snowball sampling and interviewed to document their knowledge.

Survey Techniques:

Open-ended and structured questionnaires were used to collect details on plant species, their local and botanical names, parts used, preparation methods, dosage, and modes of administration.

2.4 Data Analysis:

Ethnobotanical Indices:

The Frequency of Citation (FC) and Use Value (UV) were calculated to assess the significance of each plant in traditional asthma treatment.

LITERATURE REVIEW

Scientific databases and existing ethnopharmacological studies were reviewed to cross-check the reported medicinal properties of these selected or collected plants.

2.5 Limitations of the Study:

The study relied on oral traditions, which may vary among different communities and healers.The study does not include pharmacologicalvalidation or clinical trials of the reported plant species. Further biochemical and pharmacological research is recommended.

3. RESULTS

3.1 Ethnobotanical Documentation of Medicinal Plants:

In this study total of five plants were identified for the treatment of Asthma.According to local Villagers and Tribal peoples*Glycyrrhiza glabra* family Fabaceaewas more effectivemedicinal plantfor the treatment of asthma in different areas of Sehore District.The plants were documented based on local names, botanical names, plant parts used, preparation methodsand modes of administration **(Table 1, Fig.1)**.

Table 1: Ethnobotanical importance of some medicinal plants for the treatment of various symptoms of Asthma.

Scientific Name	Local Name	Family	Part Used	Preparation and Mode of Administration
Adhatodavasica	Vasaka	*Acanthaceae*	Leaves	Decoction taken orally to relieve bronchospasms
Ocimum sanctum	Tulsi	Lamiaceae	Leaves	Infusion with honey used as an expectorant
Solanum xanthocarpum	Kantakari	Solanaceae	Whole plant	Powder mixed with water taken for wheezing relief
Glycyrrhiza glabra	Mulethi	Fabaceae	Roots	Chewed or boiled in tea to reduce inflammation
Terminalia chebula	Haritaki	Combretaceae	Fruits	Powder mixed with warm water for respiratory clearance

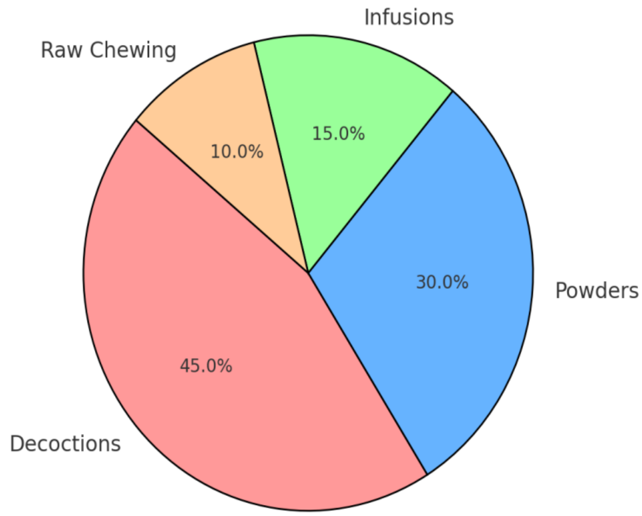

Fig.1: Preparation methods of traditional system for Asthma treatment.

4. DISCUSSION

The study documented several medicinal plants traditionally used for asthma treatment in Sehore District. The high frequency of use of plants such as *Adhatodavasica*, *Ocimum sanctum* and *Solanum xanthocarpum* suggests a deep-rooted ethnobotanical knowledge system that has been passed down through generations. These findings align with previous studies in other parts of India, where similar plants have been reported for respiratory ailments (Singh *et al.,* 2019; Panda *et al.,* 2020). The reliance on herbal medicine in rural communities highlights the continued importance of traditional healthcare, especially where modern medical facilities are limited.*Adhatodavasica* contains vasicine, a potent bronchodilator that helps in airway relaxation (Varsha *et al.,* 2025).*Ocimum sanctum* (Tulsi) has eugenol and rosmarinic acid, known for their anti-inflammatory and immunomodulatory effects (Bhattarai*et al.,*2024).*Solanum xanthocarpum* contains solasodine, which acts as a smooth muscle relaxant, reducing bronchospasms (Tyagi *et al.,* 2019).*Glycyrrhiza glabra* (Licorice) is rich in glycyrrhizin, which has expectorant and anti-inflammatory properties (Wahab *et al.,*2021).These findings are consistent with pharmacological studies demonstrating the role of these bioactive compounds in respiratory health (Gupta *et al.,* 2019; Kumar *et al.,* 2020).

Modern asthma treatment primarily involves corticosteroids, β2-agonists, and leukotriene inhibitors. While effective, these drugs often have side effects, such as immune suppression, osteoporosis, and cardiovascular risks (*Global Initiative for Asthma - GINA, 2023*). Herbal alternatives offer a natural and potentially safer approach, though standardization and clinical trials are needed to validate their efficacy and safety. Combining traditional knowledge with scientific validation could lead to the development of herbal-based formulations for asthma management (Balkrishna*et al.,* 2024).

CONCLUSION

This study highlights the rich ethnobotanical knowledge in Sehore District regarding asthma treatment. The documented plants hold significant therapeutic potential, but further scientific validation is required to integrate them into mainstream medicine. Conservation of these medicinal plants and continued documentation of traditional knowledge are crucial for sustainable healthcare solutions.

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