Chapter 5

Ethnomedicinal and pharmacological values of *Blepharis maderaspatensis*

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ABSTRACT

Under the family Acanthaceae, *Blepharis maderaspatensis*, a traditionally used medicinal plant, possesses a wide range of ethnomedicinal and pharmacological properties, including antioxidant, anti-inflammatory, antimicrobial, and anticancer activities. Although it may be beneficial for health, there needs to be a thorough review of all the research conducted on the medicinal uses and pharmacological properties of *B. maderaspatensis*. This theoretical survey will help guide future research and facilitate the development of new medicines and therapies based on its bioactive compounds. The review aims to critically analyze the available data on the medicinal uses and pharmacological properties of *B. maderaspatensis*, highlighting its potential health benefits and identifying areas for further investigation.

Keywords: *Blepharis maderaspatensis,* Ethnomedicinal uses, natural product, pharmacological properties, traditional medicine

INTRODUCTION

Blepharis maderaspatensis (L.) Heyne ex Roth (**Figure 1**), a member of the Acanthaceae family, is a traditionally used medicinal plant (**Rajasekaran et al. 2012**). Folk medicine has used this plant for centuries to treat a range of health conditions, including gastrointestinal disorders, respiratory problems, and skin diseases (**Dirar et al. 2021**). Its use in traditional medicine is often based on empirical evidence, with knowledge passed down through generations. Scientists have recently investigated the pharmacological properties of *B. maderaspatensis*, despite its long history of use in traditional medicine (**Sulieman et al. 2024**). Available literatures have shown that the plant possesses a range of bioactive compounds, including alkaloids, glycosides, and phenolic acids, which may contribute to its medicinal properties (**Abbas et al. 2020**). However, to fully understand the plant's pharmacological properties and identify the specific compounds responsible for its medicinal effects, further research is necessary. The increasing interest in natural products as a source of new medicines has highlighted the need for a comprehensive review of the medicinal uses (**Dias et al. 2012; Veeresham 2012; Cragg and Newman 2013; Atanasov et al. 2021; Dzobo 2022; Chaachouay and Zidane 2024**) and pharmacological properties of *B. maderaspatensis*. Throughout history, natural products have been a rich source of medicines, leading to the development of many conventional medicines. A gathered work on the existing literature on *B. maderaspatensis* will provide a framework for future research and facilitate the development of new medicines and therapies based on its bioactive compounds. Present work aims to provide a critical analysis of the available data on the medicinal uses and pharmacological properties of *B. maderaspatensis*. The review also

indicated the areas for further research and discuss the potential of *B. maderaspatensis* as a source of new medicines and therapies.



Figure 1: Flowers of *B. maderaspatensis*

DESCRIPTION

Blepharis maderaspatensis is a diffuse herb with creeping root-stock. The stems are sub-hispid pubescent. Leaves are often in 4 whorls and sometimes in unequal pairs, elliptic to elliptic oblong or ovate, margin subentire or with remotely serrate; abaxial sparsely hispid and substrigosely hairy on the nerves beneath. Flowers are white, fascicled or solitary on abbreviated spikes. Bracts are oblanceolate or spatulate, outer calyx lobes are oblong and lower corolla lips pubescent with pink veins and yellow spot at the base.

Fruits are capsule with broadly ellipsoid and densely covered with stout papillae (**Saxena and Brahmam 1995**).

METHODOLOGY

This review examines the available literature on the medicinal value of *Blepharis maderaspatensis*, focusing on its medicinal and pharmacological uses, as well as the bioactive compounds it contains. Various databases, such as PubMed, Scopus, and Web of Science, were searched using keywords like 'Blepharis maderaspatensis,' 'Medicinal Properties,' 'Traditional Medicine,' and 'Pharmacology.' Additionally, relevant publications and books were also reviewed (**Mohan et al. 2010; Rajasekaran et al. 2012; Ullah et al. 2020; Dirar et al. 2021; Abate et al. 2022; Mutie et al. 2023; Sulieman et al. 2024**).

RESULTS AND DISCUSSION

The review analysis of the ethnomedicinal and pharmacological values of *Blepharis maderaspatensis* reveals a wide range of traditional uses, including the treatment of stomach disorders, gastrointestinal problems, and nervous system issues (**Table 1**). The plant's antioxidant, anti-inflammatory, and antimicrobial properties are likely responsible for its efficacy in treating these conditions. Furthermore, the plant's anticancer activity, as reported by multiple studies, suggests that it may be a valuable resource for the development of new cancer therapies. The use of different parts of the plant, including the roots and leaves, to treat various health conditions indicates that *B. maderaspatensis* is a rich source of bioactive compounds. The plant's traditional use in treating scorpion stings, parasitic problems, and sores

further highlights its potential as a natural remedy for various health issues. However, further research is needed to fully understand the plant's pharmacological properties and to identify the specific compounds responsible for its medicinal effects. Probable outputs of this research include the development of new medicines and therapies based on the bioactive compounds present in *B. maderaspatensis*. The plant's antioxidant, anti-inflammatory, and antimicrobial properties make it a promising candidate for the treatment of various health conditions, including cancer, gastrointestinal disorders, and infectious diseases. Additionally, the plant's traditional use in treating various health conditions suggests that it may be a valuable resource for the development of new natural remedies and therapies. Overall, further research on *B. maderaspatensis* is likely to yield significant benefits for human health and well-being.

Table 1: Ethnomedicinal and pharmacological values of *Blepharis maderaspatensis*

Parts used	**Uses**	**Source(s)**
Leaves	Headache	**Ullah et al. (2020)**
Leaves	Painful urination	**Ullah et al. (2020)**
Roots	Anticancer	**Abate et al. (2022)**
Whole plant	Antioxidant	**Rajasekaran et al. (2012a)**
Whole plant	Stomach disorders	**Rajasekaran et al. (2012a)**
Whole plant	Gastrointestinal disorders	**Dirar et al. (2021)**
Whole plant	Anti-inflammatory	**Dirar et al. (2021)**

Whole plant	Nervous system problems	**Mohan et al. (2010)**
Whole plant	Antimicrobial activity	**Abbas et al. (2020)**
Whole plant	Anticancer activity	**Baskar et al. (2012)**
Whole plant	Wound healing	**Rajasekaran et al. (2012b)**
Whole plant	Scorpion stings	**Asmari et al. (2020)**
Whole plant	Parasitic problems	**Sulieman et al. (2024)**
Whole plant	Gastritis	**Kidane et al. (2014)**
Whole plant	Sores	**Mutie et al. (2023)**

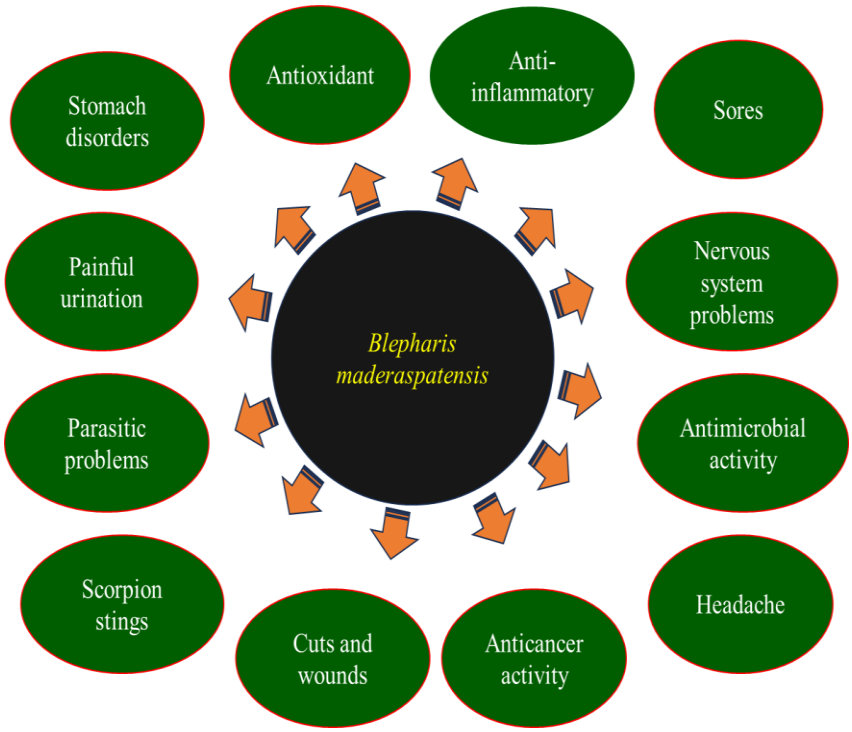


Figure 2: Medicinal potentials of *B. maderaspatensis*

CONCLUSION

The comprehensive review of *B. maderaspatensis* highlights its potential as a valuable source of bioactive compounds with diverse pharmacological properties, including antioxidant, anti-inflammatory, antimicrobial, anticancer, and wound healing activities. The findings of this review suggest that *B. maderaspatensis* could be a promising candidate for the development of new medicines and therapies, particularly for the treatment of diseases associated with oxidative stress, inflammation, and microbial infections. Future directions for this research include the isolation and characterization of specific bioactive compounds, in vitro and in vivo studies to evaluate their efficacy and safety, and the design and synthesis of novel analogues with improved pharmacological properties. These efforts could ultimately pave the way for the development of new drugs and therapies based on *B. maderaspatensis*.

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