CHAPTER-9

PRELIMINARY PHYTOCHEMICAL SCREENING AND ETHNOBOTANY OF *ABUTILON INDICUM* (L) SWEET FROM MELGHAT REGION, AMRAVATI DISTRICT (M.S.)

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Summary

The primary aim of our study was to investigate the scientific basis for the medicinal use of *Abutilon indicum* (L.) Sweet by the tribal communities of Melghat. For this, mature leaves and stems of *Abutilon indicum* (L.) Sweet were dried and ground into a powder. Extracts were prepared using water, ethanol, and chloroform, and a phytochemical analysis was conducted on each. The phytochemical screening of the plant extracts revealed the presence of alkaloids, flavonoids, phenols, tannins, terpenoids, saponins, and steroids. This analysis confirmed the presence of various bioactive compounds. Our findings suggest that, although ancient healers may not have had knowledge of plant chemistry, they were aware of the therapeutic potential of these plants. The medicinal properties of *Abutilon indicum* (L.) Sweet may be attributed to the diverse range of phytochemicals such as alkaloids, flavonoids, phenols, tannins, terpenoids, saponins, and steroids.

Keyword: Phytochemical analysis, Ethnobotany, *Abutilon indicum* (L.) Sweet

Introduction

The exact number of medicinal plants used globally today is uncertain, but it is clear that they play a significant role in both traditional and Western medicine. Pharmaceutical companies and life science researchers are increasingly focusing on ethnobotany, the study of traditional plant use in their efforts to develop new and more effective medicines. This area of research is particularly important and

E-Book ISBN: 978-81-981814-9-7, DOI: https://doi.org/10.34256/adbor.25.09.77

holds great potential for the discovery of novel pharmaceutical treatments (Afolabi et al., 2013; Nduje et al., 2015 and Verma et al., 2017).

The Western Melghat region of India is home to one of Maharashtra's most significant forests, mainly composed of dry mixed deciduous vegetation. The area is abundant in wildlife and exhibits a wide range of plant diversity, influenced by variations in altitude, soil types, temperature, humidity, and rainfall. Temperatures in the region range from 13°C to 41°C, with average rainfall between 950 mm and 1400 mm and humidity levels spanning from 48% to 90% (Khandare, 2023). The region is characterized by several soil types, such as clayey, lateritic, alluvial, and gritty-loam. The Abutilon indicum (L.) Sweet samples were collected from the Melghat area in the Amravati district.

Materials and Method

Abutilon indicum (L.) Sweet plants were collected from the local area and identified taxonomically at the Department of Botany, Shri Vasantrao Naik Mahavidhylaya, Dharni, in the Amravati district. A voucher specimen was deposited in the departmental herbarium. The stems and lateral branches of the plant were carefully washed with tap water, followed by a rinse with distilled water. Afterward, the branches were shade-dried for 5-6 days and then ground into a fine powder for further analysis.

Qualitative Analysis

Preliminary phytochemical analyses of the aqueous extract and powdered plant sample were performed following the prescribed methods by (Harborne, 1970 and Koche et al., 2010).

Result and Discussion

The current study focused on *Abutilon indicum* (L.) Sweet to examine the presence of medicinally active phytochemicals in its leaves and stems from the Melghat region in Amravati district (MS), India. Ethnomedicinal data was collected from local communities and tribal groups in the area. It was discovered that the tribes of Melghat use this plant to treat various conditions, including gastrointestinal issues like diarrhea, dysentery, and ulcers, as well as hepatoprotection, arthritis, other inflammatory diseases, and wound healing.

The findings of the qualitative phytochemical analysis are summarized in Table 1. For this analysis, plant samples were extracted using five different solvents: chloroform, methanol, petroleum ether, acetone, and water. The aqueous and methanolic extracts were found to contain most of the identified phytochemicals, including alkaloids, flavonoids, phenolics, terpenoids, tannins and saponins. Tannins were only detected in the chloroform extract, while saponins were present in the aqueous extract. These results suggest that the plant contains a variety of phytochemicals that could contribute to its medicinal properties. Previous research has examined phytochemicals in wild medicinal plants and linked them to their therapeutic effects. However, additional

phytochemical and pharmacological studies are needed to develop effective drugs from this plant.

Medicinal use of Abutilon indicum (L.) Sweet

- *Abutilon indicum* (L.) Sweet, commonly referred to as petari, is a medicinal plant utilized in traditional medicine in various cultures. It is known for several significant medicinal applications, including:
- The leaves and roots are often used to treat gastrointestinal problems such as dysentery, diarrhea, and stomach cramps.
- The leaves are often applied externally as poultices for healing wounds, including rashesh cuts, and burns.
- Traditionally, leaves and roots are often used to relieve pain, potentially due to its analgesic effects
- Inflammation and relieve pain, particularly for conditions like arthritis and rheumatism

Phytochemical Analysis of Abutilon indicum (L.) Sweet

Abutilon indicum (L.) Sweet is rich in a range of bioactive compounds that enhance its medicinal properties. Several key phytochemicals have been identified through various analyses, including:

Table 1: Preliminary phytochemistry of A. Indicum

Solvent	Alkaloids	Flavonoids	Phenolics	Tannins	Saponin	Terpenoid	Steroids
Chloroform	_	_	_	+	_	_	_
Methanol	+	+	+	_	+	_	_
Acetone	+	_	_	_	_	_	_
Petroleum ether	_	_	+	_	_	+	+
Aqueous extract	+	+	+	_	+	_	_

The results of the present study indicates that, the plant Abutilon indicum is rich in various phytochemicals like alkaloids, flavonoids, phenolics, tannins, saponins. It also showed terpens and steroids in petroleum ether extract. Our results are in various other results like that of Tiwari et al., (2020) and Mustafa et al., (2022). These phytochemicals are secondary metabolites synthesised by the plant which are responsible for the medicinal properties of the plant (Golwala et al., 2010 and Jabeen et al., 2021). Thus it could be stated that the plant abitulon indicum is an useful medicinal plant of Asteraceae.

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