



## Ethnobotanical Significance of *Sida rhombifolia* L. in the Subtropical Zone of Gorakhpur District in the Context of Jutiya Vrat

Arun Pratap Mishra<sup>1,2</sup>, Naveen Chandra<sup>2,3\*</sup> and Arun Kalkhundiya<sup>4</sup>

<sup>1</sup>Department of Habitat Ecology, Wildlife Institute of India, Dehradun, Uttarakhand, India

<sup>2</sup>Bhomya Foundation, Monal Enclave, Banjarawala, Dehradun 248001, Uttarakhand, India

<sup>3</sup>Department of Botany, Soban Singh Jeena University, Almora, India

<sup>4</sup>Department of Zoology, Soban Singh Jeena University Campus, Almora, India

\*Corresponding author: Naveen Chandra, Department of Botany, Soban Singh Jeena University Campus, Almora, India

E mail: bhattnaveen857@gmail.com

Received: December 11, 2023; Accepted: February 11, 2024; Published: February 18, 2024

©Copyright 2024: Mishra et al., This is an open access article distributed under the terms of the Creative Commons Attribution License [CC-BY 4.0.], which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

### Abstract

In the subtropical expanse of Gorakhpur District, India, *Sida rhombifolia* L. presents a distinctive cultural and ecological significance intricately woven with the traditional practice of "Jutiya Vrat." celebrated during the Krishna Paksha of the Ashvin month, this festival signifies profound connections between the community and their environment. Notably, women assume a central role in this tradition, passionately venerating *S. rhombifolia* to safeguard the well-being of their offspring. This living tradition embodies the resilience and spiritual richness of the region, encompassing cultural, ecological, and medicinal dimensions. *S. rhombifolia* potential medicinal attributes and cultural importance underscores a compelling case for its conservation, emphasizing the need to preserve both plant diversity and cultural heritage in an evolving world.

**Key words:** Conservation, Cultural, Ecological, Ethnobotany, Heritage, Medicinal

### Introduction

Nestled in the embrace of the subtropical expanse of Gorakhpur, a region known for its rich tapestry of traditions, beliefs, and the vibrant interplay between nature and culture, lies a botanical gem *Sida rhombifolia* L. This seemingly unassuming herb, a member of the Malvaceae family, reveals a fascinating confluence of botanical significance and cultural veneration in this corner of northern India [1,2]. It is in this evocative landscape, where tradition and nature coalesce, that we embark on a journey of discovery, tracing the intricate threads that bind *S. rhombifolia* to the soul of Gorakhpur District, Uttar Pradesh, India.

The heart of this narrative beats with the rhythm of "Jutiya Vrat," a sacred observance deeply rooted in the cultural ethos of the region. This festival, celebrated with fervor and devotion, unfolds during the Krishna Paksha of the Ashvin month, marking a time when the transition of seasons becomes a spiritual passage. It is here, in Gorakhpur, and extending its influence into the neighbouring states of Bihar, Jharkhand, Uttar Pradesh, and even Nepal, that *S. rhombifolia* is venerated as a symbol of auspiciousness and vitality [3,4]. The festival's very essence revolves around invoking blessings for the longevity and well-being of children, and *S. rhombifolia* stands as an embodiment of these heartfelt prayers.

The intent of this article is to traverse the intriguing terrain where ethnobotany and cultural heritage converge, encapsulated by *S. rhombifolia* and the tradition of Jutiya Vrat. As we navigate this terrain, we shall explore not only the botanical facets of *S. rhombifolia* but also its profound cultural and religious significance within the subtropical landscape of Gorakhpur.

At the crossroads of traditional wisdom and modern science, we aim to reveal the multifaceted nature of *S. rhombifolia*, showcasing its role as a harbinger of health and vitality in the cultural and botanical landscape of Gorakhpur. Through our journey, we aspire to underscore the importance of preserving not only the diversity of plant species but also the cultural heritage that thrives in their shadow. In an era where the threads connecting humanity to nature are increasingly fragile, the subtropical realms of Gorakhpur offer a testament to the enduring relationship between people and the flora that shapes their lives.

### Botanical Description

*Sida rhombifolia* thrives predominantly in the plains of India, particularly in regions with moist climates. This shrub typically reaches a height ranging from 0.75 to 1.5 meters. It boasts stout and robust roots and stems. The leaves measure approximately 2.5 to 7 cm in length and 2.5 to 5 cm in width, featuring 7 to 9 distinct veins. They are characterized by their heart-shaped appearance, serrated edges, and truncated tips. The flowers are modest in size, typically yellow or white, and grow solitarily in the axils of the plant. The fruits are about the size of a moong bean, measuring 6 to 8 mm in diameter. The seeds, known as "Bijabanda" in Ayurveda, exhibit a grayish-black hue and possess a smooth texture. *S. rhombifolia* typically blooms from August to December, with fruiting occurring between October and January.

### Ecology and Distribution

*Sida rhombifolia* is categorized as a weed and can adapt to a variety of ecological conditions. It is often found in open, sunny areas and is commonly associated with disturbed habitats. The plant's ecological adaptability allows it to thrive in a range of soil types and conditions. *Sida rhombifolia* is a widespread weed that can be found in tropical and subtropical regions around the world. In Gorakhpur district, it is likely to be present in various locations, including fields, roadsides, wastelands, and disturbed areas.

### Medicinal Properties

*Sida rhombifolia* L. also known as Arrowleaf Sida or Cuban jute, is a plant that has been traditionally used for various medicinal purposes in different parts of the world. While it's important to note that traditional uses of plants may not always be supported by extensive scientific research, *S. rhombifolia* is believed to possess several potential medicinal properties. Here are some of the reported medicinal properties of *S. rhombifolia*.

**Anti-inflammatory:** *Sida rhombifolia* is traditionally used for its anti-inflammatory properties. It is believed to help reduce inflammation and provide relief from conditions such as arthritis and joint pain [6].

**Antipyretic:** It is used to lower fever and is considered to have antipyretic properties [7].

**Analgesic:** *Sida rhombifolia* is used as a pain reliever. It may help alleviate various types of pain, including headaches, body aches, and dental pain [8].

**Respiratory Health:** In traditional medicine, it is used to address respiratory problems such as coughs, colds, and asthma. It is believed to help clear mucus and improve breathing.

**Wound Healing:** Some traditional systems of medicine use *S. rhombifolia* to promote wound healing. Crushed leaves or extracts may be applied topically to wounds and cuts [9].

**Diuretic:** It is known to have diuretic properties, which means it can promote the production of urine. This property may be beneficial for conditions like edema and urinary tract infections.

**Gastrointestinal Health:** *S. rhombifolia* is used to address digestive issues, including diarrhea and indigestion. It is believed to have mild laxative properties.

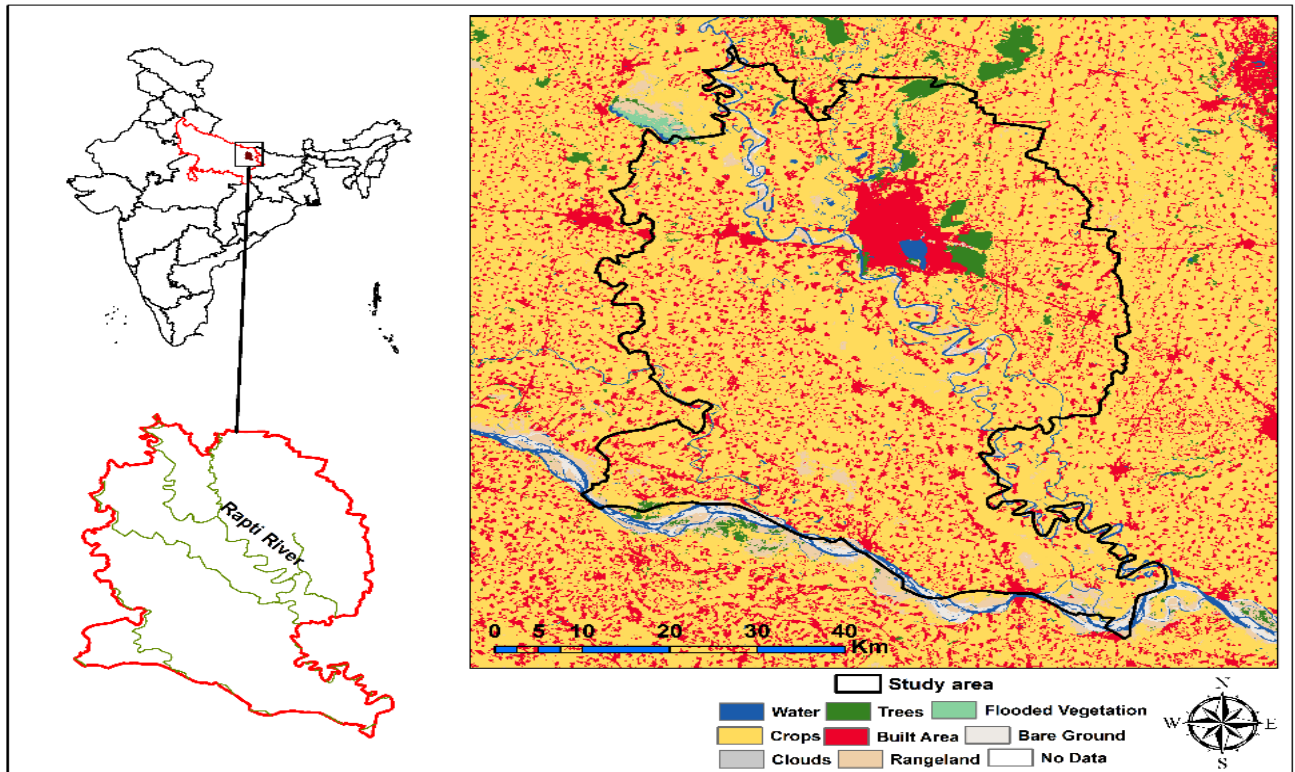
**Anti-diabetic:** In some traditional practices, *S. rhombifolia* is used to help manage diabetes. However, more research is needed to validate its effectiveness [10].

**Antioxidant:** The plant contains antioxidants, which can help combat oxidative stress and reduce the risk of various chronic diseases.

**Skin Conditions:** It may be applied topically to address skin issues such as rashes, eczema, and insect bites.

### Study Area Description

The Gorakhpur district is situated within the geographical coordinates of Lat. 26°12' 56" N to 27°6'52" N and Long. 83°04'4" E to 83°40'31" E (Figure 1), encompassing an area of 3321 km<sup>2</sup> in the Middle Ganga alluvial plain. Positioned in the northeastern corner of the state, this district extends across a substantial expanse to the north of the Ghaghara River, which forms its southern boundary. Geologically, the region primarily consists of relatively recent river-borne alluvial deposits. The landscape is characterized by a gently sloping terrain, tilting from the northwest to the southeast. The district's drainage network comprises the Ghaghara, Rapti, Ami, and Rohin Rivers. While the Ghaghara is a braided river, the others wind sinuously through the region. The elevations within the area range from 123 meters above mean sea level in the northwest to 42 meters above mean sea level in the southeast. In certain locations, higher elevations manifest where the otherwise flat landscape is interrupted by irregular sand hills. In contrast to these elevated ridges are the lower and often expansive valleys of rivers, referred to as "kachhar." These river valleys, particularly those of the larger rivers, not only lie significantly below the district's general topography but also exhibit considerable breadth. Consequently, a substantial lowland area is susceptible to inundation during periods of heavy rainfall [5].



**Figure 1: Study area.**

### Observation and Discussion

The botanical dimension of our exploration begins with the taxonomy and ecological presence of *S. rhombifolia*. This unpretentious herb reveals a taxonomy characterized by its heart-shaped leaves and tiny yellow or white flowers. Growing wild along roadsides and in wastelands, it thrives in the subtropical climate, which lends itself to the rich biodiversity of this region. The ecological adaptation of *S. rhombifolia* to these conditions sets the stage for a deeper understanding of its role in the local ecosystem and its traditional applications.

Jutiya Vrat, deeply entrenched in the cultural heritage of the Gorakhpur district and its neighbouring regions, represents a unique intersection of cultural and ecological significance. Celebrated during the Krishna Paksha of the Ashvin month, this festival bridges the transition of seasons with spiritual import. Women are pivotal in these ceremonies, fervently venerating *S. rhombifolia*, believing it safeguards the health and longevity of their offspring. This practice transcends mere ritual, embodying a living tradition reflecting the intricate bonds between the community and their environment, including agricultural cycles and lunar calendars. Simultaneously, *S. rhombifolia* is renowned for its medicinal properties, blending traditional knowledge with growing scientific recognition, positioning it as a valuable resource. The interplay between *S. rhombifolia* and Jutiya Vrat offers a unique opportunity for conservation and sustainable utilization. Responsible harvesting, propagation, and local community involvement are crucial for its preservation and continued transmission of traditional knowledge.

From a cultural perspective, *S. rhombifolia* transcends its botanical identity, finding its true significance during the annual celebration of Jutiya Vrat. The festival is a vibrant expression of the inseparable connection between the people of this region

and the natural world around them. Women, in particular, hold a significant role in these observances. They fervently worship *S. rhombifolia* during Jutiya Vrat, believing that their devotion will ensure the health and longevity of their children. The rituals surrounding the festival, from fasting to elaborate ceremonies, offer a glimpse into the profound reverence for nature and the desire for blessings that echo through the generations. As we delve deeper into this cultural connection, we find that Jutiya Vrat is more than a ritual; it is a living tradition that reflects the resilience and spiritual richness of the people of Gorakhpur District. The festival's roots run deep, intertwining with the agricultural cycles, lunar calendar, and the changing seasons. It is a time for reflection, celebration, and the reaffirmation of age-old bonds with the land and its offerings (Figure 2).



**Figure 2:** a: habitat of *Sida* b: fruit c: flower d: Village women worshipping in group on the occasion of Jutiya Vrat e: like *Sida* her children remained strong and healthy throughout their lives, Women worshipping the *Sida* plant.

### Conclusion

The intertwined relationship between *S. rhombifolia* and Jutiya Vrat in the Gorakhpur district offers a compelling case for the conservation of both the plant and the cultural heritage it represents. By recognizing the cultural, ecological, and medicinal importance of *S. rhombifolia*, efforts can be made to ensure its continued presence and promote sustainable practices that benefit both the local communities and the environment. This holistic approach to conservation aligns with the enduring relationship between people and the flora that shapes their lives in this subtropical region.

### References

1. Chaves OS, Gomes RA, Tomaz ACA, Fernandes MG, das Graças Mendes Junior L (2013) Secondary Metabolites from *Sida rhombifolia* L. (Malvaceae) and the Vasorelaxant Activity of Cryptolepinone. *Molecules* 18(3): 2769–2777.
2. Thounaojam MC, Jadeja RN, Ansarullah Patel VB, Devkar RV, Ramachandran AV (2009) Potential of *Sida rhomboidea*. Roxb Leaf Extract in Controlling Hypertriglyceridemia in Experimental Models. *Pharmacognosy Res* 1(4): 208–212.

3. Baker EG (1892) Synopsis of genera and species of Malveae. J Bot 30: 324-332.
4. ShivaRanjan VV, Pradeep AK (1994) Taxonomy of the *Sida rhombifolia* (Malvaceae) Complex in India. Sida 16 (1): 63-78.
5. Mishra AP (2023) Understanding the Decline of *Butea monosperma* (Lam.) Kuntze in Gorakhpur District, India: An Ecological Investigation. J Fore Geosci 1(2): 11-22.
6. Yan-Hong W, Bharathi A, Jadhav AN, Smillie TJ, Khan IA (2008) Structural characterization and identification of ecdysteroids from *Sida rhombifolia* L. in positive electrospray ionization by tandem mass spectrometry. Rapid Commun Mass Spectrom 22: 2413- 2422.
7. Goyal MM, Rani KK (1989) Neutral constituents of the aerial parts of *Sida rhombifolia* var. rhomboidea. Fitoterapia. 60: 163-164.
8. Bhatt DJ, Baxi AJ, Parikh AR (1983) Chemical investigations of the leaves of *Sida rhombifolia* Linn. Journal of Indian Chemical Society 60: 98.
9. Singh N, Dubey K. (2012) An ethnobotanical study of medicinal plants in Sonbhadra District of Uttar, Pradesh, India with reference to their infection by foliar fungi. J Med Plant Res ; 6: 2727-2746.
10. Singh A, Dhariwal S, Navneet (2018) Pharmacological properties and phytochemistry of *Sida rhombifolia* linn. : a review. International Journal of Innovative Pharmaceutical Sciences and Research. 6 (2): 54-68.