

Leucas aspera L. – Medicinal Herb

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Abstract: *Leucas aspera* commonly known as 'Thumbai' is distributed throughout India. The plants are curing various diseases like, asthma, skin disease, antifungal, antioxidant and antimicrobial activity. They usually prepare fresh juices, instead of boiling water and decoction leaves and flowers of *Leucas aspera*. The juice from the leaves can play a good roll in this matter. *Leucas aspera* are important ethno medicinal plants in Tamil Nadu.

Keywords: *Leucas aspera*, Medicinal herb, Disease curative.

1. Introduction

Medicinal plants have been identified and used throughout human history. Plants have the ability to synthesize a wide variety of chemical compounds that are used to perform important biological functions, and to defend against attack from predators such as insects, fungi and herbivorous mammals. The use of plants as medicines predates written human history. Ethnobotany is recognized as an effective way to discover future medicines. (Fabricant and Farnsworth March 2001).

All plants produce chemical compounds as part of their normal metabolic activities. These phytochemicals are divided into primary metabolites such as sugars and fats, which are found in all plants; and secondary metabolites compounds which are found in a smaller range of plants, serving a more specific function, (Meskin and Mark 2002).

The World Health Organization (WHO) estimates that 80 percent of the population of some Asian and African countries presently uses herbal medicine for some aspect of primary health care.

Studies in the United States and Europe have shown that their use is less common in clinical settings, but has become increasingly more in recent years as scientific evidence about the effectiveness of herbal medicine has become more widely available, (Lay and Ray, 2004).

Leucas aspera is a species within the *Leucas* genus and the Lamiaceae family. Although the species has many different common names depending on the region in which it is located, it is most commonly known as Thumbai. Found throughout India, it is known for its various uses in the fields of medicine and agriculture.

2. Materials and Methods

2.1. Geography of Tamil Nadu

Tamil Nadu is the eleventh largest state in India and covers an area of 130,058 square kilometres (50,216 sq mi). The bordering states are Kerala to the west, Karnataka to the northwest, Andhra Pradesh to the north, and the Bay of Bengal to the east. The southernmost tip of the Indian Peninsula is located in Tamil Nadu. At this point is the town of Kanyakumari which is the meeting point of the Arabian Sea, the Bay of Bengal, and the Indian Ocean.

2.2. Climate

The climate of the state ranges from dry sub-humid to semi-arid. The state has distinct periods of rainfall, which are the advancing monsoon period, South West monsoon (from June to September) with strong southwest winds, the North East monsoon (from October to December), with dominant northeast winds, and the Dry season (from January to May). The normal annual rainfall of the state is about 945 mm (37.2 in), of which 48% is through the North East monsoon, and 32% through the South West monsoon.

2.3. Botanical Identification

2.3.1. Plant Family: Lamiaceae.



2.3.2. *Common name:* Thumbai.

2.4. *Distribution*

Leucas aspera is commonly found throughout India and the Philippines as well as the plains of Mauritius and Java. In India and the Philippines *Leucas aspera* is very common weed.

2.4.1. *Habitat and ecology*

Leucas aspera is typically found in dry, open, sandy soil and is abundant in areas with waste

2.4.2. *Medicinal Parts Used:* Leaves, roots and flowers.

2.5. *Morphology*

Leucas aspera is an annual plant that can reach heights of 15–60 cm.

2.5.1. *Leaves*

The leaves of the *Leucas aspera* can be obtuse, linear or linearly lanceolate or petiolate. They can reach up to lengths of 8.0 cm, and be 1.25 cm broad. The length of petioles is typically 2.5 to 6 mm long. The leaves epidermis is covered in a thick waxy cuticle and is traversed with stomata.

2.5.2. *Stem*

The stem quadrangular and contains a wide stele. The epidermis of the stem is covered in a thick waxy cuticle and contains few traversed stomata. Typically in younger stems the xylem tissue is radially organized and the parenchymatous phloem tissue is very narrow. As the stem ages the phloem tissue widens and can be found on both sides of the radial xylem tissue.

2.5.3. *Roots*

The roots of the *Leucas aspera* contain epidermal cells which are very narrow and closely packed together. The cell walls of the epidermal cells are very thin, flattened and straight. The parenchyma in the cortex contains thick walls. The parenchyma cells are polygonally shaped and contain a large amount of starch grains. The cambium separates the phloem and xylem, which are globose to sub globose.

2.6. *Flowers and Fruit*

2.6.1. *Flowers*

Flowers on the *Leucas aspera* are white, small, and directly attached to the base without a peduncle or stalk. The flowers are held together in auxiliary whorls or dense terminals. They contain 6 mm long bracts that are bristle-tipped, linear, and acute "ciliate with long slender hairs".

2.6.2. Calyx

The Calyx is 8 to 13 mm in length. It has a tubular shape. The bottom half is glabrous and membranous, upper half is hispid and ribbed. It contains a small mouth and is very oblique. In addition, it also has small, short triangular teeth.

2.6.3. Corolla

The corolla on the *Leucas aspera* is 1 cm in length and the tube is 5 mm in length. It is annulate in the middle portion and pubescent on the upper region. The calyx is "densely white-woolly", upper lip is approximately 3 mm in length and the lower lip is approximately 6 mm in length. The middle lobe is rounded, obviate and the lateral lobes are sub acute and small in size.

2.6. 4. Fruit

The fruit of the *Leucas aspera* is 2.5 mm long. They are nut lets that are brown, smooth and oblong in shape. The outer portion of the fruit is rounded while the inner portion is angular.

3. Results and Discussion

SL.No.	Plant Parts	uses
1.	Entire Herb	Herb used as an antipyretic. It is used in fevers, cold, psoriasis, scabies and chronic skin eruptions.
2.	Leaves	Juice of leaves applied externally in psoriasis, chronic skin eruptions and painful swellings. Used in jaundice, odema, asthma, as a wormicide. Used as a nasal drops in sinusites, cold
3.	Flowers.	Flowers given with honey in coughs and colds

Leucas aspera is reported to have antifungal, prostaglandin inhibitory, antioxidant, antimicrobial, antinociceptive and cytotoxic activities, (Prajapati *et al.*, 2010). *Leucas aspera* is used in

the traditional medicine of the Philippines to treat scorpion bites. It is also an antipyretic; it is an herb that has the ability to help reduce fevers, (Jayakumar *et al.*, 2013)

In some forms of traditional medicine, the steam formed by crushing the Samoolam, also known as the plant's flowers, seeds, roots, berries, bark or leaves, can be inhaled to help treat nasal congestion, coughing, cold, headache and fever. In addition the juices of the flower can be extracted and used to help treat sinusitis, as well as headaches. The juice of the flowers can also be used to treat intestinal worms in children, (Jayakumar, 2013).

4. Conclusion

Leucas aspera are important medicinal plants in India. The decoction of *Leucas aspera* leaves and flowers cure various diseases. The whole plant in general acts as sedative, expectorant, antispasmodic, antiseptic, expectorant and anthelmintic. The juice of the leaves is used as local application for psoriasis, chronic skin eruptions and chronic rheumatism. The roots, leaves and flowers are mainly used in treating blood pressure, cold, whooping cough, asthma and stomach ache.

References

- Fabricant DS, Farnsworth NR (2001). The value of plants used in traditional medicine for drug discovery. *Environ. Health Perspect.* 109 Suppl 1 (Suppl 1): 69-75.
- Jayakumar. K, (2013). Assessment and Day to Day Utilization of Medicinal Plants in Mayiladuthurai – Nagapattinam District of Tamil Nadu, India, *Inter. Nat. J. Modern biol & Med.*, 4(1): 1-10.
- Jayakumar. K, M. Rajesh, T. M. Satheesh Kannan, S. Rajasekaran, P. Vijayarengan (2013). Traditional Knowledge and Utility of Medicinal Plants in Cauvery Delta Region Aduthurai - Thanjore District - Tamil Nadu – India, *Inter. Nat. J. Modern biol & Med.*, 3(3): 135-143.
- Lai PK, Roy J (2004). Antimicrobial and chemopreventive properties of herbs and spices. *Curr. Med. Chem.* 11(11): 1451-60.
- Meskin, Mark S. (2002). *Phytochemicals in Nutrition and Health*. CRC Press. p. 123.
- Prajapati MS, Patel JB, Modi K, Shah MB. (2010). *Leucas aspera*: A review. *Phcog Rev* [serial online] 4: 85-7.