

PHARMACOGNOSTICAL STUDY OF MANSOA ALLIACEA (LAM.)

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ABSTRACT

Mansoa alliacea Lam. (Family: Bignoniaceae) is a native plant from Amazonian basin in South America and it is also found in India. It is commonly known as 'Lahsun bel' or 'Jangali lahsun' in India. In Amazon basin traditional used of *Mansoa alliacea* is anti-malarial, antipyretic, anti-rheumatic, antiarthritic, antitussive, ritual uses, antitubergenic. The Pharmacognostic study of *Mansoa alliacea* (Lam.) leaf, stem and root were carried out to detect the proper identification and adulteration. There were no pharmacognostical reports of this plant, specifically to determine the anatomical and other physicochemical standards required for its quality control. The

findings of the current study can be useful to progress and further scientific investigation on the leaf, stem, root of this species. The present study aims at developing a standardized profile of leaf, stem and root of *Mansoa alliacea* (Lam.) which would be of immense use to identify and establish the authenticity of the plant *Mansoa alliacea* (Lam.).

KEYWORDS: *Mansoa alliacea*, Lahsun bel, Jangali lahsun, Pharmacognostical study.

INTRODUCTION

Mansoa alliacea Lam. (Family Bignoniaceae) is a native plant from Amazonian basin. This plant is mainly found in Southern America but it is also found tropical rain forest region in India. There are total 11 species. *Mansoa alliacea* have several vernacular names like Fake

garlic in English, Wild garlic in English, Ajos sachá in Span^[1], Garlic Vine in English, Other -Bejuco de ajo, Mata de ajo ;Garlic vine^[2], Bejuco De Ajo in Spanish^[2], Lasun Vel, Lasnya in Marathi, Lahan Bel in Hindi.^[3] *M. alliacea* is a native Amazonian plant belonging to the family of Bignoniaceae, its scientific name is *Mansoa alliacea* (Lam.) A. Gentry but has been classified with several synonyms.^[4] The name ajo sachá means 'false garlic', due to the characteristic garlic smell molecules present into the leaves.^[5] Generally leaves are used in the preparation of infusion or decoction. Roots are used in preparation of cold maceration and tincture and generally taken as a whole body tonic.^[6,7]

AIMS AND OBJECTIVES

The present investigation deals with the microscopic and macroscopic study of *Mansoa alliacea* (Lam.) leaf, Root and Stem.

MATERIAL AND METHODS

Collection of the plant

Mansoa alliacea (Lam.) leaves was collected from Herbal Garden of Govt. Ayurved College Raipur (C.G.) in India.

Authentication of the Drug

Taxonomic identification of collected material was done in the Raw Material Herbarium & Museum, Delhi (RHMD), National Institute of Science Communication and Information Resources (CSIR-NISCAIR) Dr. K.S. Garg New Delhi. (Ref. No. NISCAIR/ RHMD /CONSULT/2017/3056-05.13/04/2017 for authentication has been found correct leaves of *Mansoa alliacea* (Lam.) A.H. Gentry Syn. *Petiveria alliacea* L.; *Bignonia alliacea* (Lam). Which is known as *Lahsun Bel* and *Garlic Vine*. The identification is done on the basis of macroscopic studies of the sample followed by detailed scrutiny of literature and matching the sample with authentic samples deposited in the Raw Material Herbarium and Museum, Delhi (RHMD). A voucher specimen of the collected plant material was prepared, authenticated by State Drug Testing & Research Laboratory, Bhubaneswar, Odisha and by the diagnostic characters mentioned in the Ayurvedic Pharmacopoeia of India.

Instruments and Chemicals

For Pharmacognostical study

Compound binocular microscope (Olympus-CH20i modle) with built in analogue camera (CMOF, 1.4 megapixel), camera lucida (prism type/plane type), stage micrometer, glass

slides, cover slips, watch glass and other common glasswares were used during the microscopic study. Solvents viz. formalin, glacial acetic acid, ethyl alcohol and reagents viz. safranin, glycerin, chloral hydrates were procured from Ranbaxy Fine Chemicals Ltd. Mumbai, India.

Pharmacognostic Study

(a) Organoleptic Characteristic

The organoleptic characters such as colour, odor and taste of the leaf was recorded.

(b) Macroscopic Characteristics

The leaf are used for morphological observation. The macromorphological feature of leaf was observed under magnifying lens photographed using digital camera (DSC W220, Sony Corp, Japan).

(c) Microscopic Characteristics

Free hand section of leaf was taken and stained by the reagent safranin to confirm its lignification. Powder microscopy was also carried out and their specific diagnostic characters were recorded. Photomicrographs were obtained by observing the sections under compound binocular microscope and the figures of the section were drawn with the help of Camera Lucida.

RESULT AND DISCUSSION

Organoleptic study

Table No.1: Showing Organoleptic characters of leaf of *M. alliacea* (Lam.) leaf.

No.	Organoleptic character	Dried powder of mature leaf
1.	Colour	Light green
2.	Odor	Pungent & disagreeable
3.	Taste	Pungent
4.	Fracture	Fine

a) Macroscopic characters

Table No. 2: Showing Macroscopic characters of leaf of *M. alliacea* (Lam.).

No.	Macroscopic character	Dried powder of mature leaf
1.	Part	Leaf
2.	Taste	Pungent
3.	Size	7-15 cm × 4-5 cm in size
4.	Shape	Ovate to lanceolate apex mucronate and Acuminate
5.	Surface	Glabrous and glaucous, surface, texture sub coriaceous, base symmetric and tapering, venation reticulate.

A. Microscopic: The diagnostic characters of leaf **lamina** are (Fig. 2).

Upper epidermis: Transverse section of Lamina shows an upper epidermis covered by thin cuticle and covering trichomes and stomata are present. Underlying the upper epidermis is a single-layered.

Mesophyll: Underlying the upper epidermis is a single-layered, compact, radially elongated palisade having scattered rosette crystals of calcium oxalate followed by spongy mesophyll composed of 2-3 layers of loosely arranged parenchymatous cells.

Palisade parenchyma: One layer of palisade paranchayma, radially elongated palisade having scattered *Rosette crystals* of calcium oxalate followed by spongy mesophyll.

Lower epidermis: Resembles upper epidermis, but number of trichomes and stomata are more.

Covering trichomes - single celled, blunted, thick walled, unicellular.

Stomata - Anisocytic stomata.

B. The diagnostic characters of leaf midrib are

Collenchyma: Midrib consists of well-developed collenchyma beneath the epidermis.

Vascular bundles: Vascular bundles are bicollateral. Ground tissue consists of loosely arranged polygonal parenchymatous cells and cicatrix.

Xylem - Hexagonal with broad lumen.

Phloem - Oval to elliptical 5-6 layer.

b) Powder microscopy: (Fig 2)

Table No. 3: Powder Microscopic Characters of *M. alliacea* (Lam.)

	Organoleptic Character	Powder of <i>M. alliacea</i>
1.	Part	Leaf
2.	Colour	Light green
3.	Odour	Pungent & disagreeable
4.	Taste	Pungent
5.	Touch	Fine

Table No. 4: Diagnostic characters of the Powder Microscope.

S. N.	Diagnostic Characters	Powder of leaf of <i>M. alliacea</i>
1.	Epidermis cells	Straight walled, Rectangular thick walled.
2.	Crystal	Rosette crystal are present in mesophylls.
3.	Stomata	Anisocytic stomata with long axis of guard cells
4.	Fibers	Pericyclic Fiber are found
5.	Trachoma	Glistning & Unicellular
6.	Vascular bundle	Present

(d) Microscopy characters of the Root: The diagnostic characters is cork are 4-5 layer of cubical rectangular cells cortex very wide thin walled having intracellular space. Parenchyma cells are small consist thin walled and polygonal in shape. Xylem Consist of vesselse, tracheids, parenchyma and few fibers. Medullary rays are Multiseriate composed with thick walled cells and rosette crystal and pith are present. (Fig. 3).

(e) Microscopic characters of the Stem

The diagnostic characters are epidermis consists of single layer of straight walled oval cells covered by thin cuticle. Cortex contains many layers of parenchymatous cells having scattered groups of lignified pericyclic fibers. Stele consists of bicollateral vascular bundles having many patches of sieve tubes cells embedded in phloem parenchymatous cells. Pith has pitted parenchymatous cells with intercellular space and rosette crystal and clusters of calcium oxalate present in most of the phloem parenchyma. Trichomes unicellular are present. Medullary rays are multiseriate composed of thick walled cells. (Fig. 4).



Fig. 1: Leaf of *Mansoa alliacea* (Lam.).

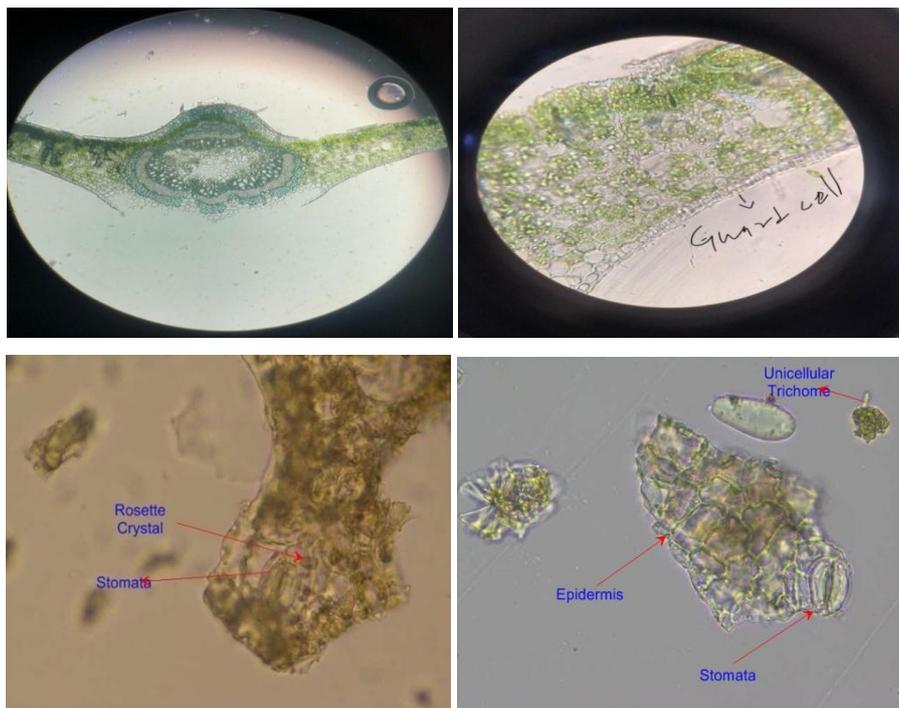


Fig. 2: Showing T.S. of Leaf (Stained), showing Guard cell in T.S. of leaf, showing Rosette crystal & Stomata in Powder microscopic, showing unicellular Trichomes and Epidermis cell in Powder microscope.

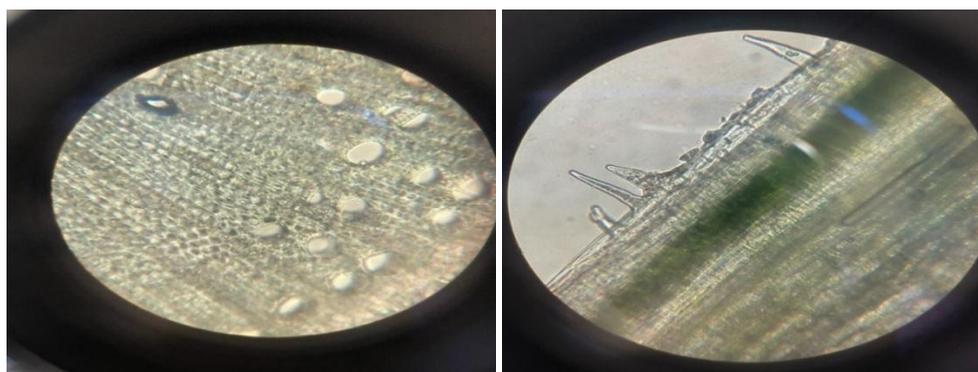


Fig. 3: Showing Xylem & Medullary rays in T.S. of Root, Showing Simple & Unicellular Trichomes.



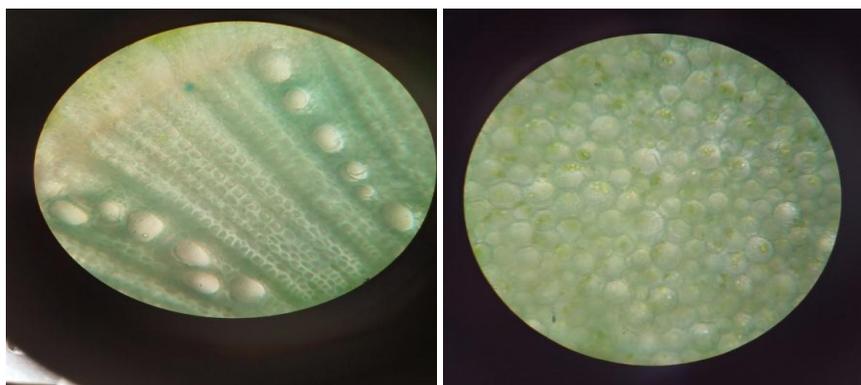


Fig. 4: Showing T.S. of Stem, Pericycle in T.S. of Stem, Showing Medullary rays & Xylem vessels, Showing Rosette crystal seen in Mesophyll.

CONCLUSION

The detailed pharmacognostic study for the leaves, Stem, Root of the *Mansoa alliacea* are laid down for the first time in this study. Morphological and anatomical studies of plant parts will enable to identify the crude drug. All these indicate *Mansoa alliacea* shows the medicinal properties. Organoleptic character proves that the plant is Katu Rasa according to Katu Rasa dosha Karma is probably Deepan, Pachan, Kaphavata shamak, Shothahar.

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