

PRELIMINARY PHARMACOGNOSTICAL AND PHYTOCHEMICAL ANALYSIS OF LEAVES OF *LANTANA CAMARA* LINN

Shah Ravi*

Department of Pharmacognosy and Phytochemistry, BMCPR, Modasa, Gujarat, India

*Ravi Shah, Director of Maan Pharmaceutical Limited, Email: ravi_laurelgroup@yahoo.com

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ABSTRACT

Lantana camara Linn.(Fam. Verbenaceae), a noxious weed grow in tropical and subtropical part of the world used as diaphoretic, antiseptic, antispasmodic, anti-inflammatory, analgesic, antipyretic, antibacterial etc. Evaluation of fresh, powdered and anatomical sections of the leaves was carried out to determine the morphological, microscopical and phytochemical profiles. Report on pharmacognostical and phytochemical evaluation of *L. camara* Linn. is not available. Thus it was useful to undertake the preliminary pharmacognostical and phytochemical evaluation of *L. camara* Linn. leaves. Leaves of *L. camara* Linn. are dark green with characteristic odour, opposite, blade ovate, 4-10cm long, with coarse surfaces and toothed margins etc. Microscopy shows covering trichomes, Sclerenchyma, collenchyma, xylem, phloem etc. Phytochemical evaluation revealed the presence of alkaloids, glycosides, pentacyclic triterpenoid, essential oil, flavanoids and saponins. The investigations also included evaluation of physical parameter such as the moisture content, ash values, extractive value and pH value. This research study will provide platform for further reference.

KEYWORDS: *Lantana camara*

INTRODUCTION

Lantana camara Linn. is noxious weed belonging to Verbenaceae family commonly known as wild or red sage (Rukhadi). It is a pink and white flower variety. Leaves are used as analgesic, antibacterial, antifungal, anticonvulsant, antiheamorrhagic, antimutagenic, antimycoplasmal, hepatotoxic, insect repellent, also in chicken pox, measles, fever, cold, rheumatism, asthmas, high blood pressure, ulcers and as vermifuge etc^{1,2}. Leaves are dark green color, opposite, blade ovate, 4-10cm long, with coarse surfaces and toothed margins with characteristic odour. Its flowers are dense, long stalked, flate topped, axillary spikes having yellow, orange, red or pink color¹. Microscopy shows covering trichomes, glandular trichomes, Sclerenchyma, collenchyma, xylem, phloem etc. Phytochemical evaluation revealed the presence of glycosides, pentacyclic triterpenoid, essential oil, flavanoids and saponins³. Moisture content, extractive value, ash value and pH are relatively simple physical parameters for development of preliminary standards^{4,6}.

MATERIALS AND METHODS

Materials

Leaves of *L. camara* Linn. herbs growing in natural habitat in Modasa, Gujarat, India, in June, 2009 and identified by H.B. Singh, Taxonomist, NISCAIR, New Delhi. Voucher specimen of the plant (NISCAIR 1270/74) has been submitted in the institute for reference purpose.

Methods

Leaves of *L. camara* Linn. were examined systematically to observe morphological^{1,5}, microscopical and powder characteristics³. Cold aqueous and alcoholic extraction method is used for determination of extractive value⁴. Standard methods were followed to determine the total, acid insoluble and water-soluble ash⁴. Calibrated digital pH meter was used to measure the pH of 1% aqueous extract and also loss on

drying was noted⁶. The ethanol and aqueous extract of leaves were subjected to phytochemical screening for detection of plant constituents.

RESULTS AND DISCUSSION

Transverse section of *Lantana camara* Linn. Shows the presence of unicellular covering trichomes with pointed head, Phloem, glandular trichomes with unicellular head & stalk, collenchyma, palisade cells at upper side, vascular bundles, sclerenchymatus layers etc.

Lantana camara Linn. powder shows the presence of xylem vessels, fibers, collenchyma, covering trichomes, Calcium oxalate crystals, paracytic stomata etc.

Lantana camara Linn. leaves has high alcohol soluble extractive than water soluble extractive. The leaf has near to neutral pH. High ash value of leaf has due to presence of calcium oxalate.

Phytochemical tests of aqueous and alcoholic extract of leaf powder of *L. camara* Linn. shows the presence of different phyto constituents viz. glycosides, pentacyclic triterpenoid, essential oil, flavanoids, saponins. Carbohydrates, Tannins, Phenolics, etc³.

CONCLUSION

Preliminary Phytochemical and pharmacognostical evaluation helps to conclude the identification of species by unicellular pointed head covering trichomes, paracytic stomata, palisade at upper side etc. and chemical constituents such as pentacyclic triterpenoids, saponin glycosides, flavanoid, tannin etc. along with physical parameters.

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Table.1 Morphology of *L. camara* L. leaf⁵

Criterion	character
1.Base	Symmetric
2.Shape of Lamina	Ovate
3. Leaf Margin	Crenate
4.Leaf Apex	Acute
5.Type of Leaf	Simple
6.Leaf Surface	Hairy
7.Venation	Reticulate
8.Colour	Dark green

Table.2. Physical parameters of *L. Camara* L. leaf

<i>Lantana camara</i> Linn.	
Extractive value	
Water soluble (%w/w)	30.20
Alcohol soluble(%w/w)	33.00
pH	6.59
Moisture content(%w/w)	11.84
Ash values (%w/w)	
Total Ash	13.20
Water soluble ash content	3.55
Acid insoluble ash content	4.55
Sulphated ash content	17.40



Fig.1 Morphology of *L. camara* L. leaf

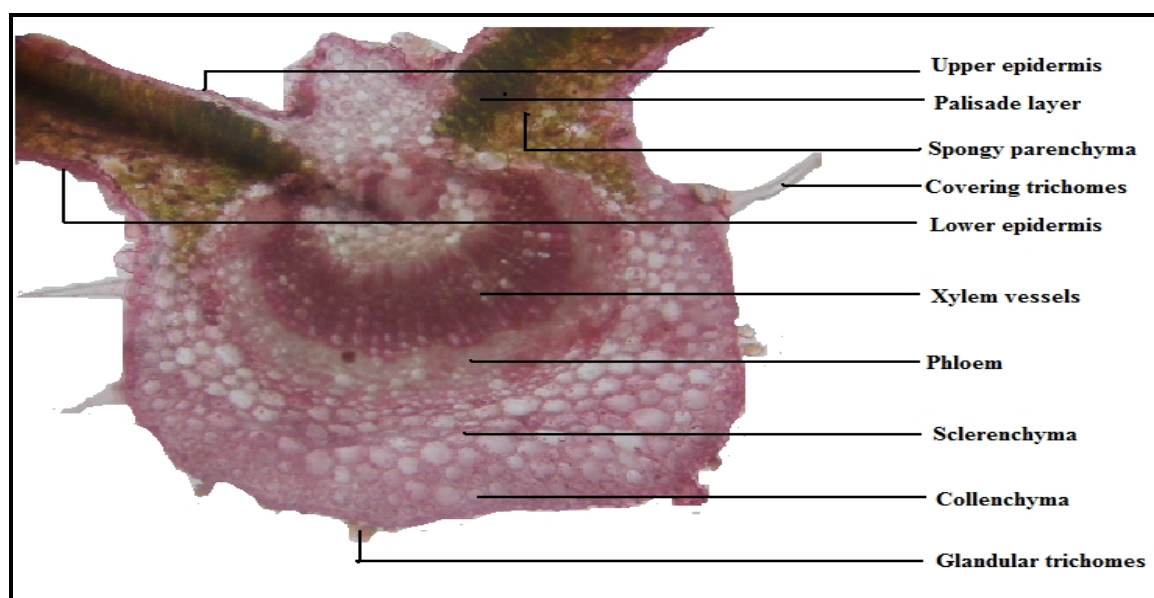
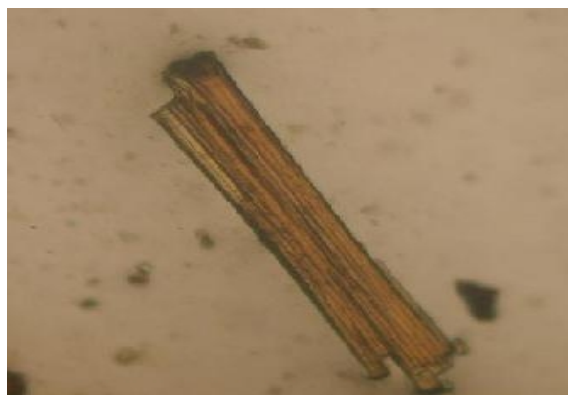


Fig.2: Microscopy of *Lantana camara* Linn. leaf

a) Fibers



b) Xylem vessels



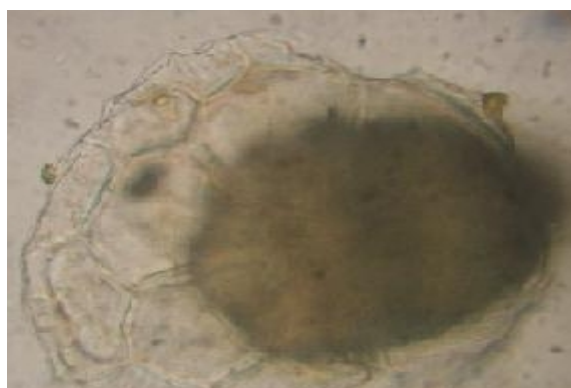
c) Covering trichomes



d) Calcium oxalate crystal



e) Collenchyma



f) Paracytic stomata

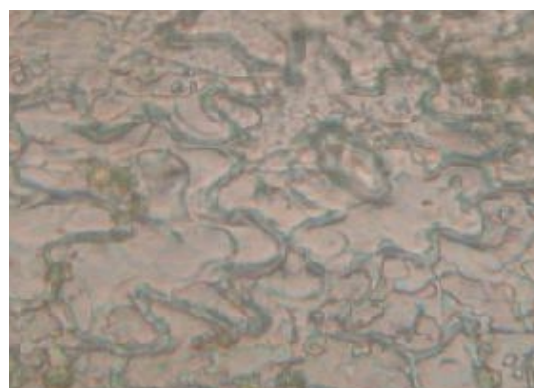


Fig.3. Powder characteristics of *L. Camara* L. leaf

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