



## Original Article

# Pharmacognostical and Physicochemical Evaluation of *Nimbadi Lepa*-an Ayurvedic Polyherbal Formulation

Rajkrinti<sup>1,\*</sup>, Laxmipriya Dei<sup>2</sup>, Harisha C R<sup>3</sup>, Shukla V J<sup>4</sup>

<sup>1</sup> PhD Scholar, Department of *Prasutitantra* and *Streeroga* IPGT and RA, GAU Jamnagar, India

<sup>2</sup> Prof, HOD of *Prasutitantra* and *Streeroga* and Dean IPGT and RA, GAU Jamnagar, India.

<sup>3</sup> Head, Pharmacognosy, IPGT and RA, GAU Jamnagar, India.

<sup>4</sup> Head, Pharmaceutical Chemistry IPGT and RA, GAU Jamnagar, India

### ARTICLE INFO

### A B S T R A C T

Received: 12 Aug 2019

Accepted: 29 Aug 2019

Episiotomy is a surgically planned incision on the perineum and the posterior vaginal wall during the second stage of labour. A surgical incision is easier to repair than a spontaneous irregular or extensive tear. Hence it is necessary to take precautions and medications for the promotion of episiotomy wound healing and inhibition of microbial infection. *Nimbadi Lepa* is a polyherbal formulation which mainly indicated for the wound healing. **Aim and objectives-** The present work was carried out to standardize the finished product "*Nimbadi Lepa*" to confirm its identity, quality and purity. Pharmacognostical and phyto-chemical observations revealed the specific characters of all active constituents used in the preparation. **Methods:** Raw drugs identification and authentication were done by pharmacognostical study, i.e. morphological features, organoleptic characters and powder microscopy. The physicochemical evaluation was carried out of the final product. **Results and conclusion-** The pharmacognostical study reveals the presence of Parasitic stomata, Prismatic crystal with brownish content, Rosette crystals, Simple fibre, stomata, yellowish brown content, annular & pitted vessels, lignified fibres and stone cellsetc. Pharmaceutical analysis showed that the loss on drying (LOD) value was 4.75 % w/w, Ash value 7.13 % w/w, water soluble extraction 16.25% w/w, methanol soluble extraction 22.25% w/w, pH value 5.5. HPTLC finger printing profile of *Nimbadi Lepa* revealed 15 spots at 254nm and 13 spots on 366nm.

**Keywords:** Episiotomy wound, *Nimbadi Lepa*, Pharmacognosy and surgical incision.

## 1. INTRODUCTION

Episiotomy wound can be compared with *Sadhyovrana*, so it can be treated as *Sadhyovrana Chikitsa*. The drugs which are selected for the study having the properties of *Vrinashodhana*, *Ropana* and *Kapha- Pitta Shamaka*. The

Corresponding author \*

Rajkrinti

PhD. Scholar, Department of *Prasutitantra* and *Streeroga*  
IPGT and RA, GAU Jamnagar, India

Email- dr.rajani08@gmail.com

contents are easily available & easy to manufacture, effective & economical to the patients.

Acharya Sushruta has mentioned *Madhu Sarpi* and *Nimbapatra Churna* as a *Saddhyovrana Ropaka*.

nimbapatramadhubhyaMtuuyuktaH: samzodhana: HsmRtaH: puurvaabhyaamsarpisaacaapiyuktzaapyparopaNaH! (SU.CHI.1/68)

## 2. MATERIALS AND METHODS

Collection, Identification and authentication of raw drugs: The raw drugs were procured from the Pharmacy of Gujarat Ayurved University, Jamnagar and which not available in pharmacy purchase from outside. The ingredients were identified and authenticated in the Pharmacognosy laboratory of Institute of Post Graduate Teaching & Research in Ayurveda, Gujarat Ayurved University, Jamnagar.

**Table 1:-Ingredients of Nimbadi Lepa (Su.Sam.Chi. 1/68)**

Sr.no.	Ingradients	Latin name	Proportion
1	Nimba Patra Churna	Azardirecta indica	1 part
2	Madhu	-	1 part
3	Go-Ghrita	-	1 part

### Preparation of the drug:

**Preparation of Churna:-***Nimba Patra* was collected and dried in shade after that fine powder was done in grinding machine. All the drugs were prepared in the Pharmacy of I.P.G.T. & R.A.

**Method of application of drug-** *Nimba Patra Churna*, *Madhu* and *Go-Ghrita* were taken in equal proportion (5 gms each ) and mixed well then apply on the episiotomy wound.

### Pharmacognostical evaluation of ingredients of Nimbadi Lepa

Individual powders were subjected to various sensory characters like colour, taste, odour, and touch.

**Table 2: Organoleptic study**

Characters	Results
Colour	Greenish
Taste	Sweetest Astringent
Odour	Aromatic
Consistency on Touch	Firm
Form	Powder

### Powder microscopy:

The powder of respective parts was taken in glass slide covered with cover slip and observed under the Carl Zeiss microscope with stain (Phloroglucinol and conc. HCl) and without stain, to study the characters. The microphotographs were taken by using Carl Zeiss binocular attached with camera

### Physicochemical study:

*Nimbadi Lepa* was analyzed by using of qualitative and quantitative parameters at Pharmaceutical Chemistry Laboratory, Institute for Post Graduate Teaching & Research in Ayurveda, Gujarat Ayurved University, and Jamnagar by using various standard physico-chemical parameters. Physical tests like loss on drying, ash value and chemical

tests like water-soluble extractive, alcohol-soluble extractive, and pH value were conducted. High performance thin layer chromatography (HPTLC) is carried out with methanol extract of *Nimbadi Lepa*

### HPTLC

First of all, take a drop of sample and diluted with hexene (as per require) then application of the sample at the one end of the pre-coated silica gel GF 60254 aluminum plate by means of Camag Linom at V sample applicator fitted with a 100-µL Hamilton syringe. Chloroform: MeOH (9:1) was used as the mobile phase. After development, densitometric scan was performed with a Camng TLC scanner III in reflectance absorbance mode at UV detection as 254 nm and 366 nm under the control of Win CATS Software (V 1.2.1. Camag). Then the plate was sprayed with vanillin sulfuric acid followed by heating and then visualized in daylight. The Rf value and the colors of resolved bands and finger printing profiles are recorded.

## 3. RESULTS

**Microscopic Study [5-7]:** The diagnostic microscopical characters of individual powder are shown in PLATE 1-15. The pharmacognostical study reveals the presence of Parasitic stomata, Prismatic crystal with brownish content, Rosette crystals, Simple fibre, stomata, yellowish brown content, annular & pitted vessels, lignified fibres and stone cells in the *Nimbadi Lepa*.

**Table 3: Physicochemical tests**

No.	Practical name	Nimbadi Lepa
1.	1. Particle size	(a) Percentage of moderately fine powder = 52.7% w/w (b) Percentage of fine powder = 84.3% w/w (c) Percentage of very fine powder = 35.88 %w/w
2.	Loss on drying (at 1100C)	4.75 % w/w
3.	3. Ash Value	7.13 % w/w
4.	Water soluble extraction	16.25% w/w
5.	Methanol soluble extraction	22.25%w/w
6.	pH value by pH meter	5.5

### HPTLC STUDY RESULTS

On analysing under demonstrator at 254 nm, the chromatogram showed 15 peaks and at 366nm chromatogram showed 13 peaks. Three dimensional densitogram (3D) at 254 and 366 nm shows comparative Rf value of sample with standard.

**Table 4: The findings of HPTLC at 366nm and 254nm UV light (Methanol Extract)**

Wavelength	Spots	Rf Value
At 254 nm	15	0.01, 0.09, 0.14, 0.25.0.29, 0.39, 0.40, 0.40, 0.50, 0.57, 0.62, 0.71.0.75,0.89, 0.92
At 366 nm	13	0.01, 0.09, 0.13, 0.25.0.29, 0.39, 0.40, 0.40, 0.50, 0.62, 0.71.0.75,0.89, 0.92
Vaniline sulphuric acid (after spray)	3	0.02, 0.08, 0.12

**4. DISCUSSION**

Pharmacognostical evaluation showed that the *Nimbadi Lepa* contains all the ingredients, which were observed in the microscopical characters, this shows the purity and quality of the product. Phytochemical analysis showed that material gains no moisture during storage, so quality of the product is not affected. The obtained values of these tests were found within normal limits which indicate good quality of product. Pharmaceutical analysis showed that the loss on drying value was loss on drying (LOD) value was 4.75 % w/w, ash value 7.13 % w/w, water soluble extraction 16.25% w/w, methanol soluble extraction 22.25% w/w, pH value 5.5. Particle size (a) Percentage of moderately fine powder = 52.7% w/w (b) Percentage of fine powder = 84.3% w/w (c) Percentage of very fine powder = 35.88 %w/w. All tests are normal in limit and show the product is good in quality and better results in the diseases. HPTLC results showed that the 15 spots at 254nm and 13 spots on 366nm.

Plate no. 1-15

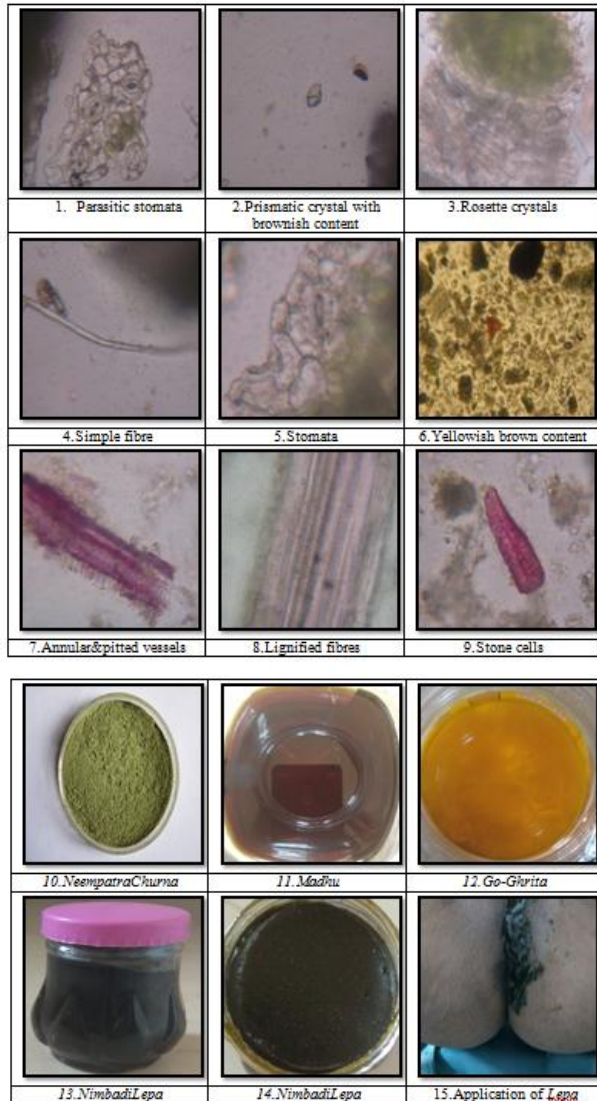


Fig 1: Diagnostic microscopical characters of individual powder

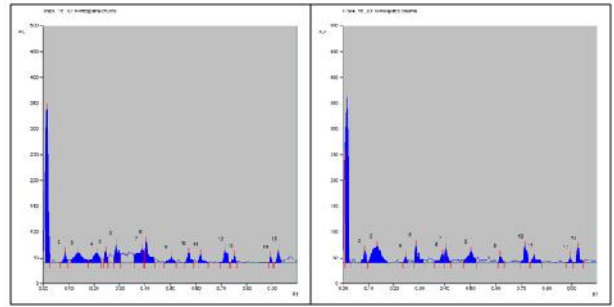


Fig 2: Densitogram of *Nimbadi Lepa* at 254 and 366nm

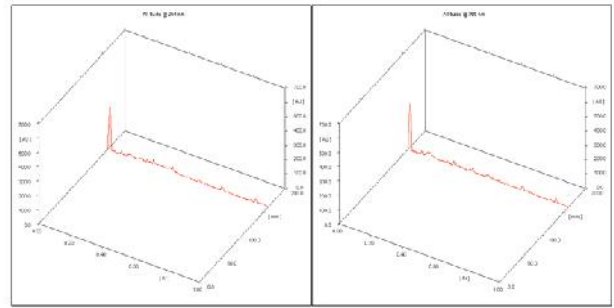


Fig 3: Three dimensional HPTLC (3D) Densitogram at 254nm and 366nm

**5. CONCLUSION**

Pharmacognostical and phytochemical evaluation of *Nimbadi Lepa* illustrated the specific characters of all ingredients which were used in the preparation. The pharmacognostical study reveals the presence of parasitic stomata, prismatic crystal with brownish content, rosette crystals, simple fibre, stomata, yellowish brown content, annular & pitted vessels, lignified fibres and stone cells in the *Nimbadi Lepa*. All the physicochemical parameters like acid value, loss on drying, ash value is analysed within the normal range. The result shows the quality of the preparation is standard.

**6. REFERENCES**

1. Prof. G.D. Singhal and Colleagues, *Susruta-Samhita Chikitsa 1/38 Ancient Indian Surgery*, Chaukhamba Sanskrit Pratishthan, Delhi, reprint: 2007: Vol:2;
2. Anonymous, "Ayurvedic Pharmacopoeia of India", Govt of India, Ministry of Health and Family welfare, Publication department, New Delhi, Part II, Vol. II, appendix, 1st edition, page no. 233-235.
3. Anonymous, "Ayurvedic Pharmacopoeia of India", Govt of India, Ministry of Health and Family welfare, Publication department, New Delhi, Part II, Vol. II, Appendix, 1st edition, page no.165-167.
4. Stahl E. *Thin layer chromatography a laboratory hand book*. Berlin: Springer-Verlag: 1969. p. 2-16.
5. Anonymous, 1999, *Planner Chromatography, Modern Thin layer Chromatography*, Switzerland, pg 2-16.

6. The Ayurvedic Pharmacopeia of India, Delhi: Ministry of health & Family welfare, department of Ayush; 2011,first edition , part 1, Vol-5 , 119-123 pp.
7. The Ayurvedic Pharmacopeia of India, Delhi: Ministry of health & Family welfare, department of Ayush; 2011,first edition, part 1, Vol-6 , 40-44 pp.

**Conflict of Interest: None**

**Source of Funding: Nil**