

COMPARATIVE PHYSICO-CHEMICAL AND PHARMACEUTICAL STUDY ON NIMBAARAGWADHA LEPA AND NIMBAARGWADHA MALAHARA

Sindhura R. Rao^{1*}, Dr. Soumya Saraswathi M.² and Dr. Subrahmanya Padyana³

¹Third Year BAMS,

²Professor, Department of PG studies in Samhitha & Siddhanta,

³Director, Alva's Traditional Medicine Archive & Research Centre,
Alva's Ayurveda Medical College, Moodabidire, Karnataka.

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*Corresponding Author

Sindhura R. Rao

Third Year BAMS, Alva's
Ayurveda Medical College,
Moodabidire, Karnataka.

ABSTRACT

Ayurveda is globalizing and becoming part of life style. Updating and upgrading the advanced medicinal preparations and healthy food as per the present trend by maintaining principles and practices of ancient Ayurveda is the need of the hour. *Nimbaaragwadha Lepa* mentioned in *Kshudra Roga Chikitsa* of *Chakradatta* is indicated in *Padminikantaka*. *Padminikantaka* is compared to *Acne vulgaris* in contemporary science which is common in teenaged people, characterized by pimples that are circular, needle like appearance with pale circular discoloration on face having symptoms of *Kapha-Vata* vitiation like thick, whitish or creamish pus, increased *Vedana* and

Kandu. The objectives of the present study are to prepare *Nimbaaragwadha Lepa Churna* as per classical reference and to modify the *Nimbaaragwadha Lepa* into *Nimbaaragwadha Malahara* and to standardize both *Lepa* and *Malahara* for therapeutic use. Drugs required for preparing the formulations are collected. Preparation of *Nimbaaragwadha Lepa* and *Malahara* is done as per classics following the Ayurvedic Formulary of India. The pharmaceutical preparations were analyzed as per the standard parameters.

KEYWORDS:- *Padminikantaka*, *Nimbaaragwadha Lepa*, *Nimbaaragwadha Malahara*, *Tridosha Shamaka*.

INTRODUCTION

Herbal wealth is being used in different angles and different dimensions of human health. Eternal Ayurveda is becoming popular in health sector of every individual. The advanced medicinal preparations and healthy food as per the present trend by maintaining principles and practices of ancient Ayurveda is the need of the hour.

Padminikantaka is categorized under *Kshudra Roga* by *Acharya Sushruta*, which is caused by the vitiation of *Vata-Pitta-Kapha* and exhibited in *twak*.^[1] *Padminikantaka* is compared to *Acne vulgaris* in contemporary science which is characterized by pimples that are circular, needle like appearance with pale circular discoloration on face having symptoms of *Kapha-Vata* vitiation with increased *Vedana* and *Kandu*.

Nimbaaragwadha Lepa mentioned in *Kshudra Roga Chikitsa* of *Chakradatta*^[2] which is indicated in *Padminikantaka*. Further *Nimbaaragwadha Malahara* also prepared by modifying the *Nimbaaragwadha Lepa* by following the guidelines of Ayurvedic Formulary of India, which aids in the skin application by removing the problems of consistency, shelf life and medium of mixing the *Churna*. Hence, present study is undertaken to compare the physico-chemical and pharmaceutical study on *Nimbaaragwadha Lepa* and *Nimbaaragwadha Malahara*.

MATERIALS AND METHODS

I. Identification and Collection of drugs

The drugs required for the preparation of *Nimbaaragwadha Lepa* and *Malahara* were identified by the scholar expert in *Dravyaguna Vijnana* and was obtained from the Alva's Ayurveda Pharmacy.

Ingredients required:

Nimba Twak- Bark of *Azadirachta indica*

Aragwadha Twak- Bark of *Cassia fistula*

Sikta- Bee wax

Tila taila- Edible Sesame oil

II. Pharmaceutical preparation

The preparation of Nimbaaragwadha Lepa and Malahara was done following the Standard classical references under the expert Guidance at *Rasa Shasthra* and *Bhaishajya Kalpana* Lab of Alva's Ayurveda Medical college, Moodabidire.

Nimbaaragwadha lepa churna

- *Nimba Twak* and *Aragwadha Twak* obtained from authentic source was cleaned and dried well.
- They were made into fine powder and sieved using mesh of size 120mm separately (Figure 1 & 2).
- Obtained fine powder of both *Nimba Twak* and *Aragwadha Twak* were mixed homogeneously (Figure 3).
- Care was taken to avoid lump formation.
- It was then filled into clean and airtight containers (Figure 4).

Nimbaaragwadha malahara

- *Nimba Twak* and *Aragwadha Twak* obtained from authentic source was cleaned and dried well.
- They were made into course powder and sieved using the mesh of size 22/60 separately.
- The course powder of both *Nimba Twak* and *Aragwadha Twak* were mixed homogeneously by avoiding lump formation.
- It was added with sufficient amount of water to form *Kalka*.
- In a vessel kept on heat source, *Nimbaaragwadha Twak Kalka*, *Tila taila* and *Jala* were added in the ratio 1:4:16 (Figure5).
- *Nimbaaragwadha siddha Taila* was obtained as per standard *taila paaka* method (Figure 6).
- 5 parts i.e. 80g of *Sikta* was dissolved in obtained 400ml of *taila paaka* and filtered using clean cloth (Figure 7, 8 & 9).
- It was filled into ointment tubes to get *Nimbaaragwadha Malahara* (Figure 10 & 11).

III. Physio- Chemical and Analytical studies

The studies were conducted in the analytical lab of *Dravya Guna* Department, Alva's Ayurveda Medical College, Moodabidire as per *API Standards*.

RESULTS

A. Pharmaceutical preparation

a. *Nimbaaragwadha lepa churna*

Sl. No.	Ingredients	Quantity Used	Quantity Obtained
1	Nimba Twak Sukshma Churna	1000g	2000g
2	Aragwadha Twak Sukshma Churna	1000g	

b. *Nimbaaragwadha malahara*

Sl. No.	Ingredients	Ratios	Quantity Used	Quantity Obtained
1	Nimba twak Yavakuta churna	1	62.5g	Nimbaaragwadha siddha Taila 400 ml
2	Aragwadha twak Yavakuta churna		62.5g	
3	Tila taila	4	500ml	
4	Jala	16	2000ml	
	Nimbaaragwadha siddha taila	1	400ml	480g
5	Sikta	5	80g	

B. Organoleptic characters of *nimbaaragwadha lepa Churna* and *Malahara*

Sl. no.	Descriptions	Results in <i>lepa churna</i>	Results in <i>malahara</i>
1	Form	Fine powder	Ointment
2	Colour	Brownish red	Yellow
3	Odour	Characteristic Aromatic odour of drugs	Characteristic Aromatic odour of Sikta

C. Physio chemical analysis of *nimbaaragwadha lepa Churna* and *Malahara*

Sl. no.	Descriptions	Results in <i>Lepa Churna</i>
1	Loss on drying at 105 degree	2.70%
2	pH value	5.80
3	Water soluble extract	4.6%
4	Alcohol soluble extract	4.02%
5	Total ash	7.54%
6	Acid insoluble ash	4.24%

Sl. no.	Descriptions	Results in <i>Malahara</i>
1.	Loss on drying at 105°C	1.65%
2.	pH value	5.40
3.	Refractive Index (Oil)	1.342
4.	Spreadability (gm.cm/s)	12
5.	Viscosity (Oil)	42.12%
6.	Rancidity	negative
7.	Iodine value (Oil)	104.48
8.	Saponification value (Oil)	184mg/g

D. Ash analysis of *nimbaaragwadha lepa churna*.

Test	Procedure	Results in <i>Lepa Churna</i>
For carbonates	To a portion of filtrate, add few drops of dil. HCl.	Absent No brisk effervescence
For Fluorides	To 2ml of filtrate, add few drops of acetic acid and calcium chloride solution.	Absent No precipitate
For Chlorides	To 2ml of filtrate, add dil. HNO ₃ . After boiling, add few drops of Silver Nitrate.	Absent No precipitate
For Sulphates	To one portion of the filtrate, add dilute HCl and Barium chloride.	Absent No white precipitate
For Chromate	To one portion of filtrate add 2ml of acetic acid and lead acetate	Absent No yellow precipitate
For Phosphate	To 2ml of the filtrate, add few drops of silver nitrate solution & few drops of ammonium hydroxide.	Present Precipitate is formed
For Potassium	To 2ml of the filtrate in the test tube, add picric acid.	Absent No precipitate
For Sodium	To a portion of filtrate in dil. HCl, add potassium pyroantimonate solution.	Absent No precipitate
For Aluminium	To a portion of filtrate in dil. HCl, add ammonium chloride and ammonium hydroxide.	Absent No precipitate
For Calcium	To 2ml of filtrate, add Ammonium chloride & ammonium hydroxide. Filter several times, till the precipitate of Aluminium disappears then add Ammonium carbonate.	Absent No precipitate

E. Phyto-chemical studies of *nimbaaragwadha lepa churna*.

Phyto-chemical Test	Procedure	Result in <i>Lepa Churna</i>
For Carbohydrates	Benedict's Test: To 0.5ml of aqueous extract of drug add 5ml of Benedict's solution and boil for 5 mins.	Present Blue coloured precipitate
For Proteins	Biuret's Test: To 1ml of hot aqueous extract of drug add 5-8 drops of 10% w/v sodium hydroxide solution followed by 1 or 2 drops of 3% w/v Copper Sulphate Solution.	Present Reddish brown colour is formed
For Starch	Dissolve 0.015gm of Iodine and 0.075gm of Potassium iodide in 5ml of Distilled water and add 2-3ml of an aqueous extract of the drug.	Absent Blue colour is not formed

For Alkaloids	Mayer's test: Add a few drops of Mayer's reagent to 1ml of acidic aqueous extract of the	Absent No colour change observed
For Flavonoids	In a test tube containing 0.5ml of alcoholic extract of the drug, add 5-10 drops of dil. HCl followed by a small piece of magnesium	Present Reddish pink colour is seen.
For Phenolic	To 1-2ml of methanol extract of the drug, add few drops of ferric chloride solution.	Present Bluish Black colour is seen.
For Elagic Acid	Boil 1-2 ml of methanol extract of the drug, add 2-3 crystals of sodium nitrate and 3-5ml of 0.1N HCl.	Present Pinkish red colour is formed
For Tannins	To 1-2ml of Alcohol extract of the drug, add few drops of 5% FeCl ₃ solution.	Present Dark Green colour indicated presence of Gallo tannins
For Saponins	In a test tube containing about 5ml of aqueous extract of the drug, add a drop of Sodium bicarbonate solution, shake the mixture vigorously & leave for 3 mins	Present Honeycomb like froth is formed
For Resins	Dissolve the extract in acetone & pour the solution into distilled water.	Present Turbidity is seen.
For Steroids	Salkowski reaction: Add 1ml of Conc.H ₂ SO ₄ to 2ml of chloroform extract of the drug carefully, from the sides of the test tube	Absent No colour change is seen

DISCUSSION

The *Nimba Twak Churna* which is used in the formulation have pharmacological actions of antibacterial, antifungal, antiviral that yields to the *Kustaghna*, *Krimighna*, *Kandughna*, *Sothahara* properties.^[3] *Aragwadha Twak Churna* has similar pharmacological actions such as antibacterial, antifungal, antiviral and anti-inflammatory^[4], giving it *Kustaghna*, *Krimighna*, *Kandughna* properties. *Nimba* being *Pitta-Kapha Shamaka* and *Aragwadha* being *Vata-Pitta Shamaka* gives a total effect of *Tridosha Shamaka* to the formulation. Thus, the formulation used has also been noticed to cure the redness of the skin along with paleness, in and around the lesions.

Photos



Figure 1: Nimba twak churna.



Figure 2: Aragwadha churna.



Figure 3: Nimbaaragwadha lepa churna.



Figure 4: Nimbaaragwadha lepa churna in airtight containers.



Figure 5: Tila taila, Kalka, Jala



Figure 6: Taila Paaka Siddha Lakshana

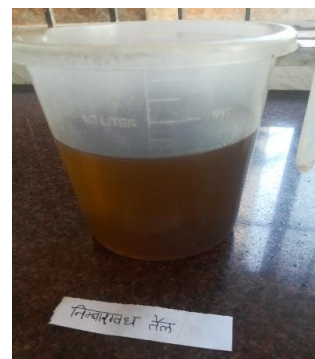


Figure 7: 400ml of filtered Nimbaaragwadha Taila



Figure 8: 80g of Sikta.



Figure 9: Sikta dissolved in Taila.



Figure 10: Malahara filled in ointment tubes.



Figure 11: Nimbaaragwadha malahara.

CONCLUSION

Even though Acne is not a life threatening situation, it has influenced in the lifestyle of people and clear skin has boosted one's confidence. This study has attempted in curing the unique skin complaint and both *Nimbaaragwadha Lepa* and *Malahara* have remarkably cured the *Padminikantaka* and its associated complaints. Further, its efficacy can be proved over large number of people. *Nimbaaragwadha Lepa* and *Malahara* can also converted to other recent cosmetic forms like lotions, creams and aiming at the Standardizing the formulation.

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