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A COMPARATIVE PHARMACEUTICO-ANALYTICAL STUDY OF AVALGUJADI LEPA AND ITS MODIFIED CREAM

Dr. Ambili K. S.*[1], Dr. Purushotham K. G.[2], Dr. Harshitha M.[3], Dr. Pavana K. B.[4]

[1]P.G. Scholar, [2]Professor and H.O.D., [3]Professor, [4]Associate Professor
Department of Post Graduate Studies in Rasa Shastra & Bhaishajya Kalpana
K.V.G. Ayurveda Medical College & Hospital, Sullia, Karnataka.

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***Corresponding Author**
Dr. Ambili K. S.
P Department of Post Graduate studies in Rasa Shastra & Bhaishajya Kalpana K.V.G. Ayurveda Medical College & Hospital, Sullia, Karnataka.

ABSTRACT

Lepa Kalpana is one among the preparations mentioned in classics, derived from the basic *Panchavidha Kashaya Kalpanas.*[1] The medicines in the form of a paste used for external application are called as "*Lepas*". It may be prepared from wet drugs or dry drugs. Liquid media is required for the preparation of *Lepa* from the dry drug. The drugs are first made into a fine powder and then mixed with some liquid media like water, cow's urine, oil, ghee, *Swarasa*, *Kwatha* etc. to make into paste form. *Avalgujadi Lepa*[2] is a classical preparation mentioned in *Ashtanga Hrudaya*. It contains *Avalguja beeja churna*, *Shodita Haratala* and *Gomutra*. It is indicated in *Shwitra*, mentioned as *Savarnakaranam Param*. In modern era, the needs of human are changing according to the lifestyle. They prefer more user-friendly products than the classical products as it is difficult to apply, not easily transportable etc. So here an attempt is made to convert *Avalgujadi Lepa* into its modified cream form.

KEYWORDS: *Panchavidha Kashaya Kalpanas, Avalgujadi Lepa, Shodhana of Haratala,* Cream.

INTRODUCTION

Lepas are widely used for topical application in Ayurveda Pharmaceutics. Local application is more useful in skin disorders as it directly acts on the lesion. *Avalgujadi Lepa*[2] is one of the best preparations that can be used externally in *Shwitra*. This is mentioned in *Ashtanga*

Hridaya Shwitra-Krimi Chikitsa. It contains *Avalguja bija churna, Shoditha Haratala* and *Gomutra*.

The intellectual mind searched a mode of administration of the essential elements of the drug in timely and effectively. Hence, the various medicinal substances (*Bheshaja*) took into the shape of formulations (*Kalpana*). *Pancha Vidha Kasaya Kalpanas*[1] are the true results of such a great thought of our *Acharyas*.

It is said, "Necessity is the mother of Invention". Perhaps, the necessities which appeared in the various areas like dose, route of administration, shelf-life period, availability, easy dispensing, efficacy and to get potentially active principles (*Ousadhatwa*) of the drugs, various *Upakalpanas* like *Sneha - Sandhana-Vati-Leha* even along with *Rasayogas* came into existence. *Lepa Kalpana* is well known among them.

In the context of *Shwitra, Avalgujadi Lepa* is strongly suggested as it contains pigmentation property, and it should be mixed with *Gomutra* for external application. *Gomutra* has disadvantages like foul smell, chances of contamination, and difficulties in transportation, dispensing and scarcity. So, an alternative dosage form can be used without compromising its therapeutic values. Cream will be one of the best convenient forms. So, in this study, an attempt is made to prepare *Avalgujadi Lepa* and to modify it into cream form, then to evaluate and compare the analytical parameters of both.

AIM

Pharmaceutico analytical study of *Avalgujadi Lepa* and its conversion into cream.

OBJECTIVES

- To prepare *Avalgujadi Lepa* by classical method.
- To prepare *Avalgujadi* cream from *Avalgujadi Lepa*.
- To study analytical and physio-chemical[3] parameters of both the samples.
- To compare all parameters of both *Avalgujadi lepa* and its cream.

MATERIALS AND METHODS

- Dried *Bakuchi* seeds, *Ashudha Haratala* were collected from K. V. G. Ayurveda Pharma and Research Centre, Sullia. Cow's urine was collected from local Goshala. Fresh *Kushmanda* was collected from local vegetable market in Sullia.

- Ingredients for cream were collected from various certified suppliers in Karnataka and Kerala. Raw materials were authenticated from QC laboratory of K. V. G. Ayurveda Pharma and Research Centre, Sullia.
- Preparation of *Avalgujadi Lepa* was carried out in the Department of PG Studies in Rasa Shastra and Bhaishajya Kalpana, KVG Ayurveda Medical College and Hospital under the supervision of our unit head.
- Preparation of *Avalguajadi Lepa* Cream was done in K.V.G Ayurveda Pharma and Research Centre, Sullia.

Purification of Haratala

Purification of *Haratala*[4] was carried out as per the reference given in *Rasa Ratna Samucchaya*. Unpurified *Haratala* was kept on a piece of cloth and *Pottali* was prepared. *Dolayantra* containing *Kushmanda Swarasa* was prepared in which the *Pottali* was so adjusted that it was kept immersed in to the *Swarasa*. The *Mandagni* was given for 1 *Yama* i.e., 3 hours. After completion of 3 hours, the *Pottali* was taken out, was washed with hot water and the powder of *Shodita Haratala* was dried.

Preparation of Avalgujadi Lepa

Table No. 1: Showing the ratio of ingredients of *Avalgujadi Lepa.*

Ingredients	Amount	Ratio
Bakuchi Churna	200gm	1
Shodita Haratala	50gm	¼ part
Gomutra	Q. S	Q. S

- Finely powdered *Bakuchi Churna* and *Shudha Haratala* were taken in a *Khalwa Yanra* and mixed properly.
- 95ml of *Gomutra* was added to this mixture in *Khalwa Yantra* slowly and triturated well.
- It was then triturated thoroughly for 3hrs.
- After trituration, the *Churna* was collected and kept in drier for drying.
- After drying, it was powdered again.
- Then *Lepa Churna* was weighed and stored.

Preparation of Avalgujadi Lepa Cream[5]

Table No. 2: Showing the ingredients of Avalgujadi Lepa Cream.

Ingredients	Quantity
Emulsifying Wax	6gm
Stearic acid	4gm
Cetyl Alcohol	6gm
Sarshapa Taila	20gm
Sheabutter	40gm
Demineralised water	116gm
Glycerine	6gm
Avalgujadi Lepa Churna	10gm

- In the oil phase, accurately weighed *Sarshapa Taila*, Sheabutter, Stearic acid, Cetyl alcohol, emulsifying wax are taken and heated in double boiled method upto 65^0 C.
- In the aqueous phase, demineralised water and glycerine are taken and heated upto 65^0C.
- The heated aqueous phase is added to the oil phase with continuous stirring.
- While stirring, *Avalgujadi Lepa Churna* was mixed slowly until uniform mixture was formed. The stirring is continued till cream consistency is achieved.
- After the cream gets cooled, it is transferred to suitable containers and kept for setting for 24 hours.

Analytical study

Analytical parameters are necessary for raw drugs, procedures and end products to provide quality assurance. Analytical study was carried out as per the guidelines of Laboratory guide for the analysis of Ayurveda and Siddha Formulations. The parameters includes;

- Organoleptic Characters
- Physio- chemical characers.

Table No. 3: Showing the analytical parameters.

Avalgujadi Lepa	Avalgujadi Cream
pH	pH
Loss on Drying	Loss on Drying
Total Ash	Total Ash
Water Soluble Extractive	Water Soluble Extractive
Alcohol Soluble Extractive	Alcohol Soluble Extractive
Acid insoluble ash	Acid insoluble ash
-------	Total Acidity
-------	Rancidity
-------	Total fat
-------	Viscosity
-------	Spreadability

- Thin Layer Chromatography

OBSERVATION AND RESULTS

1. Organoleptic Characters

Table No. 4: Showing Organoleptic characters of *Avalgujadi Lepa* and *Avalgujadi* cream.

Sl no.	Organoleptic Character	Avalgujadi Lepa	Avalgujadi Cream
1.	Colour	Greenish brown colour	Cream
2	Odour	Gomutra smell	Characteristic smell
3	Appearance	Fine powdery	Homogenous
4	Consistency and texture	Soft and powdery	Slimy and smooth

2. Physio-Chemical Parameters

Table No. 5: Showing Results of Physical and Physio-Chemical parameters of *Avalgujadi Lepa* and *Avalgujadi* Cream.

Sl No.	Parameter	Avalgujadi Cream	Avalgujadi Lepa Cream
1	pH	6.06	5.08
2	Loss on drying	5.76%w/w	64.096%w/w
3	Total Ash	8.399%w/w	0.140%w/w
4	Water Soluble Extractive	11.760%w/w	1.800 %w/w
5	Alcohol Soluble Extractive	17.72%w/w	24.640%w/w
6	Acid insoluble ash	1.679%w/w	0.093%w/w
7	Total Acidity	-----	0.738%
8	Rancidity	-----	Absent
9	Total fat	-----	5.73%w/w
10	Viscosity	-----	142300cp
11	Spreadability (Qualitative)	------	Even

CHROMATOGRAPHY – THIN LAYER CHROMATOGRAPHY

Sample 1: *Avalgujadi Lepa*

Sample 2: *Avalgujadi* Cream

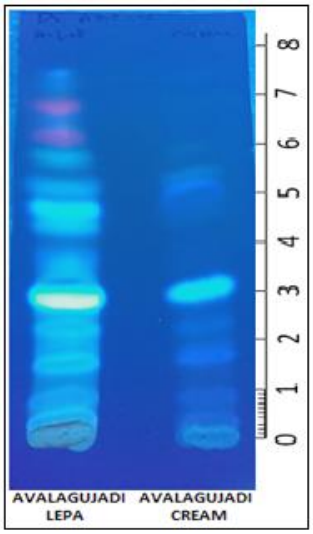

Fig 1: Image of TLC.

Table No. 6: Showing T.L.C. study of both the samples.

Major spot	Color	Rf value	Avalgujadi lepa	Avalgujadi cream
1	Blue	0.375	Present	Present
2	Light blue	0.562	Present	Absent
3	Light blue	0.625	Present	Present
4	Pink	0.775	Present	Absent
5	Pink	0.875	Present	Absent

FIGURES SHOWING AVALGUJADI LEPA PREPARATION

Fig. No.2: Bakuchi churna

Fig. No.3: Gomutra

Fig. No.4: Shudha Haratala

Fig.No. 5: Adding all the three ingredients of Avalgujadi Lepa

Fig. No. 6: Peshana of the ingredients

Fig. No.7: Avalgujadi Lepa after drying

Fig. No. 8: Avalgujadi Lepa Final product

FIGURES OF PREPARATION OF AVALGUJADI LEPA CREAM

Fig. No. 9: Emulsifying wax

Fig. No.10: Sheabutter

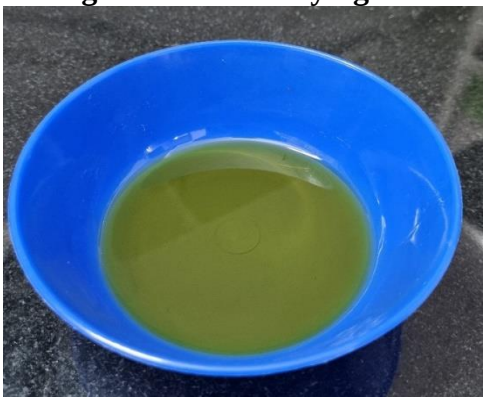

Fig. No.11: Sarshapa thaila

Fig. No.12: Glycerine

Fig. No.13: Stearic acid

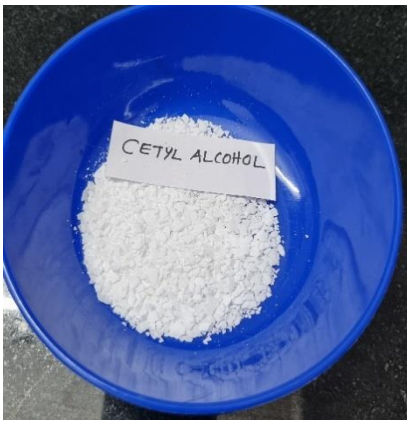

Fig. No.14: Cetyl Alcohol

Fig. No.15: Preparing oil phase

Fig. No.16: Preparing water phase

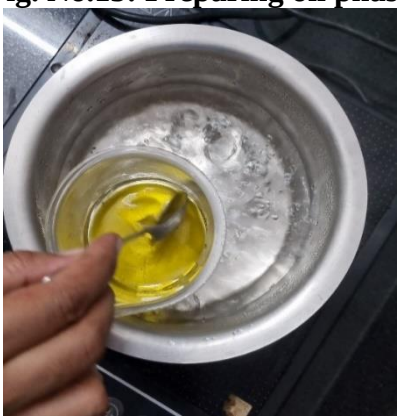

Fig. No.17: Double boiling of Oil phase

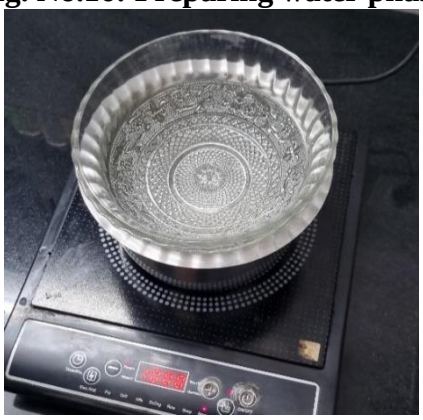

Fig. No.18: Double boiling water phase

Fig. No.19: Blending of both oilphase and water phase

Fig. No.20: Avalgujadi Cream Final product

DISSCUSSION

- *Avalgujadi lepa* is a classical preparation indicated for *Shwitra*. It is explained as *Savarnakaram Param* in *Shwitra* which is best in attaining normal skin colour.
- The drugs of *Avalgujadi Lepa* possesses *Ushna Veerya* and it is a known fact that drugs act by its *Veerya.*
- It is mentioned to apply after mixing with *Gomutra*.
- *Gomutra* has disadvantages like foul smell, chances of contamination, and difficulties in transportation, dispensing and scarcity. *Gomutra* will not be readily available every time. Cream is a simple solution to people who do not like to apply *Lepa* by mixing with *Gomutra* and wash them later.
- Here in *Avalgujadi Lepa* preparation, *Bhavana* with *Gomutra* is done. Therefore the properties og *Gomutra* will be incorporated within the *Lepa* itself.
- Here *Sarshapa Taila* is used as the oil, because it is indicated in *Shwithra* by different books. It posseses *Katu*, *Tikta Rasa*, *Ushna* and *Teekshna Gunas*, *Ushna Virya*, *Srothoshodhana*, *Krimihara* and *Kushtahara* properties. *Sarshapa Taila* has got action in *Shwitra* might be because of these characters.
- As per the analytical studies, *p*H of both the preparations comes in a range that is not harmful to skin, will not alter *p*H of skin.
- LOD of *Avalgujadi Lepa* cream is more compared to Lepa because cream consists of more excepients and water content than Lepa.
- Because of presence of less portion of organic content in *Avalgujadi* cream, the total ash and acid insoluble ash is less when compared to Lepa.
- Here in *Avalgujadi Lepa*, water soluble extractive is 11.760%w/w, whereas in cream it was 0.093%w/w. Cream contain more bases and excipients like shea butter, stearic acid, cetyl alcohol and *Sarshapa Taila*. All such ingredients in cream makes it less water soluble.
- Acid soluble extractive of *Avalgujadi Lepa* is 17.7%w/w 1 and that of cream is 24.640%w/w. The greater the alcohol soluble extractive of cream might be because of the excipients added for the preparation of cream. These excipients may be more soluble in alcohol than in water.
- TLC showed 5 major spots (Rf value 0.315, 0.562, 0.625,0.775, 0.875) in a *Lepa*. Whereas, a cream showed two major spots (Rf value 0.375, 0.625). These two spots corresponds to the 1st and 3rd spot of *Lepa*. The minor spots are indistinct. More number

of spots and their intensity signifies that chemical constituents and their concentration may be more in *Lepa* than a Cream.

- The indication of both *Avalgujadi Lepa* and *Avalgujadi* cream are said to br in the management of *Shwitra*. The clinical study of *Avalgujadi Lepa* and *Avalgujadi* cream can be done on patients and is analytically found to be safe for external use.

CONCLUSION

- In the pharmaceutical study, it was easy to prepare both *Avalgujadi Lepa* and *Avalgujadi* Cream.
- Analytically *Avalgujadi* cream was slightly more acidic. Water soluble extractive was more in *Lepa*, whereas alcohol soluble extractive is more in cream.
- Thus, we can conclude that both formulations are analytically stable.

REFERENCES

1. Agnivesha, Charaka Samhita revised by Charaka and Dridhabala with Ayurveda Dipika commentary of Chakrapanidutta, Varanasi: Chaukambha Surbharathi Prakashan; reprint, 2009; Sutrasthana 4/7, 31.
2. Acharya Vagbhata, Ashtanga Hridaya with Sarvangasundara commentary of Arunadatta and Ayurveda Rasayana commentary of Hemadri, edited by Hari Sadasiva Sastri Paradkara, first edition, Varanasi: Chaukhamba Surabharti Prakashan, Reprint, 2011; Chikitsa Sthana 20/13, 720.
3. Lavelkar G.S. - Laboratory Guide for the analysis of Ayurveda and Siddha Formulations, C.C.R.A.S., New Delhi, 2010.
4. Vaghbata, Rasaratna Samuchchaya with Hindi Commentary Suratnojjvala by Shastri, Chaukhamba Amarabharati Prakashan, edition, 2015; 3/70, 76.
5. Gaurav Kumar Sharma, Jayesh Gadhiya, Meenakshi Dhanawat-Textbook of Cosmetic Formulations, published in ‘Research Gate’, 2018.