

## A REVIEW ON ADVANCED FORMS OF AYURVEDIC LEPA KALPANA (TOPICAL APPLICATION)

Lekshmy M.<sup>1\*</sup>, Shuchi Mitra<sup>2</sup>, Usha Sharma<sup>3</sup> and Khem Chand Sharma<sup>4</sup><sup>1</sup>P.G Scholar, P. G. Department of Rasa Shastra evum Bhaishajya Kalpana, Uttarakhand Ayurveda University, Rishikul Campus, Haridwar.<sup>2</sup>Associate Professor, P. G. Department of Rasa Shastra evum Bhaishajya Kalpana, Uttarakhand Ayurveda University, Rishikul Campus, Haridwar.<sup>3</sup>Professor, P. G. Department of Rasa Shastra evum Bhaishajya Kalpana, Uttarakhand Ayurveda University, Rishikul Campus, Haridwar.<sup>4</sup>Professor and H.O.D., P. G. Department of Rasa Shastra evum Bhaishajya Kalpana, Uttarakhand Ayurveda University, Rishikul Campus, Haridwar.**\*Corresponding Author: Lekshmy M.**

P.G Scholar, P. G. Department of Rasa Shastra evum Bhaishajya Kalpana, Uttarakhand Ayurveda University, Rishikul Campus, Haridwar

Article Received on 25/05/2021

Article Revised on 15/06/2021

Article Accepted on 05/07/2021

**ABSTRACT**

*Lepa kalpana* is the topical medicament meant for external application to the skin or mucous membrane. Ayurvedic *lepa* have existed from the time immemorial, from *vedas* to *samhitas* and are in practice in concurrent era too. *Lepas* are used in different disease conditions like wound cleaning, wound healing, brightness of skin, inflammation etc. In this way it can be said that *Lepa kalpana* plays an important role in Ayurvedic system of medicine. In Ayurveda, topical application includes *lepa*, *upanaha*, *malahara* etc. In *lepa kalpana* absorption of drug takes place through body surface which deserves special care for its optimum delivery. The main disadvantage of the transdermal drug delivery is the poor penetration of most of the compounds into the human skin. If the *lepa* contains herbal drugs it should be used within 24 hours, otherwise the drugs get decomposed and the application may harm the skin. If the *lepa* is made up of mineral or metallic drugs, the drugs themselves do not have any expiry period. Hence the shelf life depends upon the base with which the drugs are mixed to form a *lepa*. Nowadays it is difficult to use *lepa* in its actual form because of smell, greasiness, fluidity and also due to lack of time. In the present era there is a demand for potent, easy, fast formulations. Hence, research on modifications of *lepa kalpana* is being undertaken in Ayurveda for increasing its efficacy and shelf-life. In this article a review of various modification of *lepa kalpana* is done.

**KEYWORDS:** *Lepakalpana*, *Upanaha*, *Malahara*.**INTRODUCTION**

*Lepa kalpana* is one of the *upakalpana* mentioned in Ayurveda for external application of the body surface. Human physic receives the drug in two ways. One through internally, i.e through the aperture of the body and another through externally (The whole surface of the body). Absorption of drugs through body surface deserves special care for its optimum delivery. *Lepa kalpana* plays an important role in Ayurvedic system of medicine. Metals and minerals are in frequent use in Indian system of medicine since long back without any untoward effect. In *Bhaishajya kalpana* application of drug externally is known as *lepa*. It includes *lepa*, *Upanaha*, *Malahara* etc.<sup>[1]</sup> Significance of *lepa kalpana* in therapeutics has been well emphasized in classical texts of Ayurveda. But nowadays application of *lepa* in its actual form is a time-consuming process and also it is

having various disadvantages like impediment in utilization, protection trouble, non-accessibility of crisp medication in all the season and so on. The consolidation of a raw herb into steady measurement structure is a troublesome assignment. Homemade *lepa choorna* protects its strength for 30 days if kept in a hermetically sealed holder. Consequently, pharmaceutical change is key for better upgrade of adequacy, shelf life of usability, agreeableness of the item.<sup>[2]</sup> So there is requirement for change in its form. So, we can prepare *lepa guti*, gel, ointment, cream, facial mask for the better benefit.

***Lepa kalpana* in ancient era**

**Definition of *lepa*:** When *ardra* or *sushka dravya* are ground with water well and made into a paste and used for external application, such a formulation is known as *Lepa*.<sup>[3]</sup>

Its synonyms are *lipta*, *lepa*, and *lepana*.<sup>[4]</sup>

**Method of preparation:** The selected freshly dried drugs are taken in a clean *Khalva yantra*, pounded to fine powder form and filtered. This filtrate is again taken in *Khalva yantra* and added with required little quantity of water or any of the specified liquid preparations. The mixture is thoroughly triturated to obtain it in paste form, which is used as *lepa* for external application.<sup>[5]</sup>

### Types of lepa

Based on the mode of application Acharya Sushruta explained three types of *lepa* such as *pralepa*, *pradeha* and *alepa*.<sup>[6]</sup> According to the therapeutic use Acharya Sharnghadhara classified *Lepa* as *Doshaghna*, *Vishaghna* and *Varnya*. The thickness of the application of *lepa* for these three are different.<sup>[7]</sup> Ashtanga samgraha various type of *lepa* like *Snaihika*, *Nirvapana*, *Prasadana*, *Stambhana*, *Vilayana*, *Pachana*, *Pidana*, *Shodhana*, *Shoshana*, *Savarnikarana*<sup>[8]</sup> have been mentioned.

### Conditions for lepa Preparation and Application<sup>[9]</sup>

- ❖ Ingredients are taken in the powder form
- ❖ *Lepas* are applied against direction of hair follicle to facilitate quicker and good absorption<sup>[10]</sup>
- ❖ *Lepas* are to be removed instantly after drying<sup>[11]</sup>
- ❖ *Lepa* should not be applied during night<sup>[12]</sup>
- ❖ Overlapping of *Lepa* is avoided strictly

### Shelf-Life period of lepa

If *Lepa*, contains vegetable drugs, it should be used within 24 h, otherwise the drugs get decomposed, and the application may harm the skin. If a *Lepa* is made up of mineral and metallic drugs, then it does not have any expiry period. Hence, it depends totally upon the base with which the drugs are mixed to form a *Lepa*. Because, except *Siktha*, *Ghruta*, and *Taila*, all other Ayurvedic bases have the propensity to go rancid within 24 h.

Rule 161B of Drugs and Cosmetics Rule, 1945 said that self-life period of *Lepa Churna* is 1 year, *Lepa Malahar* is 2 years and *Lepa guti* is 3 years.<sup>[13]</sup>

### Lepakalpana in present era

*Lepa* in its textual form is not convenient in present era. Common problems with Ayurvedic *lepas* are stains after its application, smell, sensitivity, greasiness, fluidity, frequency of flow etc. So, it is very necessary to do study and research in *lepa kalpana*. For the convenience, new dosage forms like cream or ointment have been developed and which is free from all common problems of applications of old *lepa*. In these new Ayurvedic creams, herbs are main ingredients and these herbs are added with some base for the cream/ointment and some other excipients.

### Various new doses form of lepa kalpana are listed below

1. **Ointment:** There are two methods for imparting the ingredients into the ointment base i.e. trituration and

fusion. In trituration method the finely subdivided insoluble medicaments are evenly distributed by grinding with a small amount of the base followed by dilution. In fusion method, the ingredients are melted together in descending order of their melting point and stirred to attain homogeneity. A study was undertaken for converting *Tiladi Lepa* into ointment form. The ointment was prepared by trituration method using fine powder of the ingredients along with honey and white petroleum jelly as base. This ointment form facilitated a longer shelf life.<sup>[14]</sup>

2. **Cream:** Creams are viscous semisolid ointment like preparations. They may be oil-in-water type (aqueous creams) or water-in-oil type (oily creams). Creams can be easily removed from skin and clothing because they contain water soluble bases and hence are more convenient to use.

3. **Lepa guti:** Herbal *lepa choorna* preserves its potency up to one month if kept in an airtight container.<sup>[15]</sup> Moreover there is a possibility of deterioration of powder if the powder is exposed to the moisture conditions. To overcome this problem *Lepa choorna* is modified into *varti (Lepa guti)*. *Vartis* were made by grinding the fine powders of the drugs with the liquid to form a soft paste. Then it is made into solid, round shaped sticks of about 3 cm in length and dried in shade.<sup>[16]</sup> *Vartis* can be preserved for one year if kept in airtight container.<sup>[17]</sup> Thus it is having the advantages of long shelf life, portability, fixed dosage form and global acceptance.

4. **Gel:** Gels are semisolid preparation intended for the application of skin or mucous membrane. It is composed of two interpenetrating systems in which colloidal particles (Gelator or gallant) are uniformly distributed throughout a dispersion medium forming a three-dimensional matrix known as the Gel.<sup>[18,19]</sup> The polymer in gel acts as back bone of gel matrix which gives gel its structural strength, increased adherence to the surface where applied and decreased permeation of the larger molecules hence making the retention possible.<sup>[20]</sup>

### Advantages of gel

Gels are easy to formulate and is an elegant non-greasy formulation and can be used as controlled release formulation. Gels have good adherence property and they are biodegradable and biocompatible. Retention time of gels are higher than the other dosage forms. It forms a protective layer on the site of application. It is easy to wash after application. They provide excellent spreadability and cooling effect due to solvent evaporation.<sup>[21]</sup>

5. **Herbal sheet mask:** Sheet mask is one of the latest and newest trends which is popular in Asia.

Compared with another form of the mask, sheet mask has Occlusive Dressing Treatment (ODT) mechanism that has a good absorption and penetration profile, the efficient and hygienic (disposable) packaging, and does not need to be cleaned after usage.<sup>[22]</sup> Preparation of Sheet mask are made by adding herbal extracts in various concentrations to the essence base. Evaluation of Sheet mask preparation includes homogeneity test, viscosity test, pH test, Stability test, Irritation test, and anti-aging effect using the skin analyser device.<sup>[23]</sup>

### Benefits of sheet mask

Sheet masks are made up of pre-cut mask fabrics soaked with serum that contains active ingredients, answering specific skin concerns. Sheet masks are easy to use, just need to open the sachet, unfold the mask and put it on the skin. Sheet masks can be easily carried everywhere. It can be used in aeroplanes, as skin suffers during travelling. The treatment takes only 10-15 minutes once a week, so it is not time consuming. Patients can choose the mask according to their skin condition, environment, climate, or health condition.

### DISCUSSION

Transdermal drug absorption can significantly alter the drug kinetics. Transdermal drug delivery has an advantage over other types of medication delivery such as oral, intravenous, intramuscular etc. Because it provides a controlled release of the medication into the patient, it enables a steady blood level profile resulting in reduced systemic side effects.<sup>[24]</sup> Transdermal drug absorption depends on various factors such as site of application, thickness and integrity of the stratum corneum epidermidis, size of the molecule, permeability of the membrane of the transdermal drug delivery system, state of skin hydration, pH of the drug/moderate pH value (typically above isoelectric point pI~4) is more suitable for topical delivery.<sup>[25,26]</sup> drug metabolism by skin flora, lipid solubility, depot of the drug in skin, alteration of the blood flow in the skin by additives and body temperature, skin thickness and amount of blood flow in the skin, age of the consumer etc.<sup>[28]</sup> *Lepa* preparations are applied to skin to prevent the metabolism of drugs in the liver and to increase the bioavailability of the drugs and also to provide the effect of herbs directly on the site of action.<sup>[29]</sup> There are different types of *lepa* explained in Ayurveda for treating various diseases. Because of the difficulties for applying *lepa* and also because of its less stability it is always good to find new dosage form. In this article an attempt was made to discuss the benefits of various dosage forms like cream, ointment, *lepaguti*, and sheetmask over *lepa kalpana*.

### CONCLUSION

Topical application is providing the therapeutic benefits by reaching local tissues and with minimal side effects. Hence *Lepa Kalpana* is a very important treatment

procedure for poison, arthritis, wound etc. and also have cosmetic value. In contemporary era there are tremendous opportunities for further advancement of *Lepa Kalpana* for much better therapeutic and cosmeceutical purposes by adopting current science and technology. Various advancements have been done in *lepa kalpana* and all these advanced doses form are suitable in present scenario.

### ACKNOWLEDGEMENT

The authors greatly acknowledge to the P.G. Department of Rasashastra and Bhaishajya kalpana, Uttarakhand Ayurveda University, Dehradun for the support and guidance to conduct the review article.

### REFERENCE

1. G.Wagh. Rajendra, *Lepa kalpana-A Review*, Journal of Ayurveda and Integrated Medical Science, 2018; 3(5); 2456-3110
2. Gandhi Jayaprakash Abhay, Pharmaceutical development and dosage form modification of *lepa guti*; a an ayurvedic topical formulation, World Journal of Pharmacy and Pharmaceutical sciences, 2016; 5(5): ISSN 2278-4357.
3. Yadavji trikamji, *Dravya guna vijnana*, Uttarardha, 62: 2-105.
4. Shastri Parasurama, *Sharngadhara Samhita*, Uttarakhand Commentary of Adhamallas Dipika and Kasiramas Gudardha Dipika, Chaukhambha Orientalia, Reprint, 2018; 355: 11-1.
5. Angadi Ravindra, *Text book of Bhaishajya kalpana vijnana*, 2<sup>nd</sup> edition, Varanasi, Chaukhamba Surbharti prakashan, 2016.
6. Narayan Ram Acharya, *Kavyatirtha, Sushruta samhita, Sutra sthana 18/6* Varanasi, Chaukhambha Surbharti prakashan, P.84<sup>1</sup> G.Wagh. Rajendra, *Lepa kalpana-A Review*, Journal of Ayurveda and Integrated Medical Science, 2018; 3(5): 2456-3110.
7. Gandhi Jayaprakash
8. Shrivastava Shailaja, *Sharngadhara samhita*, Uttarakhand, Jeevanprada Hindi Commentary, 4<sup>th</sup> edition, Varanasi, Chaukhambha Orientalia, 2005; 424: 11-1-2.
9. Angadi Ravindra, *Text book of Bhaishajya kalpana Vijnana*, 2<sup>nd</sup> edition, Varanasi, Chaukhambha Surbharti Prakashan, 2016
10. Sud Khyati Sushant, Functional overview of the formulation used for external application in *Twak vikaras*, International Journal of Ayurvedic and Herbal Medicine, IJAHM, 2014; 4(2).
11. Shastri Parasurama, *Sharngadhara Samhita*, Uttarakhand Commentary of Adhamallas Dipika and Kasiramas Gudardha Dipika, Chaukhambha Orientalia, Reprint, 362: 11-73.
12. Shastri Parasurama, *Sharngadhara Samhita*, Uttarakhand Commentary of Adhamallas Dipika and Kasiramas Gudardha Dipika, Chaukhambha Orientalia, Reprint edition, 362: 11-74.
13. Shastri Parasurama, *Sharngadhara Samhita*, Uttarakhand Commentary of Adhamallas Dipika

- and Kasiramas Gudardha Dipika, Chaukhambha Orientalia, Reprint edition, 362: 11-74.
14. Shilpa Patil, Topical dosage forms (Lepa kalpana); An explored treasure, International Journal of Green pharmacy, 2015; 9(4).
  15. K.R.Soumya, Pharmaceutical study of Tiladi Lepa and its modification to ointment form, Ayurpharm Int J Ayur Alli Sci, 2016; 5(9).
  16. Anonymous, Ayurvedic Formulary of India. 2<sup>nd</sup> edition, New Delhi, The Controller of publications Civil lines, Lep prakarana, 2003; 172.
  17. Rathi Bharat, Pharmaceutical standardization of Avalgujadi lepa guti, Journal of Indian system of medicine, 2016; 4(2).
  18. Anonymous, Ayurvedic Formulary of India. 2<sup>nd</sup> edition, New Delhi, The Controller of publications Civil lines, Varti, Netra bindu and Anjana prakarana, 2003; 199.
  19. Lieberman HA, Rieger MM, Banker GS. Pharmaceutical Dosage form: Disperse systems, 2<sup>nd</sup> edition, Marcel Dekker, New York, 1998
  20. Buerkle LE, Rowan SJ. Supramolecular gels formed from multi-component low molecular weight species. Chem Soc Rev, 2012; 41: 6089-6102.
  21. Labarre D, Ponchel G, Vauthier C. Biomedical and Pharmaceutical polymers. Pharmaceutical press, London, UK, 2010.
  22. Syeda Ayesha Ahmed un Nabi, Pharmaceutical Gels: A Review, RADS-JPPS, 2016; 4(1): 40-48.
  23. LEE, C.K. Assessment of the facial mask materials in skin care, Department of Cosmetic Science
  24. Reveny Julia, Formulation of aloe vera juice Sheet mask as anti-aging, International Journal of Pharm Tech Research, 2016; 9(7).
  25. Tanwar H and Sachdeva R: Transdermal Drug Delivery System: A Review, Int J Pharm Sci Res, 2016; 7(6): 2274-90. doi: 10.13040/IJPSR.0975-8232.7(6).2274-90
  26. Merino V, Opez A, Kalia Y.N., Guy R.H., Electropulsion versus electroosmosis: Effect of pH on the iontophoretic flux of 5-fluorouracil, Pharm.Res., 1999; 16: 758-761.
  27. Marro D., Guy R.H., Delgado-Charro M.B., Characterization of the iontophoretic permselectivity properties of human and pig skin, J. Controlled release, 2001; 70: 213-217
  28. Angadi Ravindra, Textbook of Bhaishajya Kalpana Vijnana, 2<sup>nd</sup> edition, Varanasi, Chaukhambha Surbharti Prakashan, 2016; 349-359
  29. Choudhari Thejaswini, Role of Lepakalpana for improving beauty of skin w.s.r. to mukhalepa, International Journal of Ayurveda and Pharma Research, 2017; 5.