

Topical dosages forms (*Lepa Kalpana*) of Ayurveda: An unexplored treasure

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Abstract

Human physic receives the drug in two-ways. One through direct routs, i.e. through apertures of the body and another one are through the whole surface of the body. Absorption of drugs through body surface deserves special care for its optimum delivery. Ayurvedic *Lepas* do exit from the time immemorial from Vedas to Samhitas and in practice in a concurrent era too. This review article is the sincere attempt to summarize all the facts regarding *Lepa Kalpana* of Ayurveda. It includes its exploration in terms of therapeutics, cosmeceutics, and nutraceutics mentioned in various classical treatises specially mentioned in Schedule I of Drugs and Cosmetics Act, 1940. We tried to reveal adaptations of advanced technologies and its impact in the manufacturing of Ayurvedic *Lepa* licensed as classical and patent and proprietary medicines. In our critical analysis of facts, we had established that technology initiation in the preparation of Ayurvedic medicines, especially in *Lepa Kalpana* is like value addition in its pharmaceuticals and therapeutic characteristics. The market of Ayurvedic cosmeceuticals is enhancing day-by-day. People believe in safety and efficacy of Ayurvedic topical applications. These are protective and promotive to skin as these are free from artificial chemicals. Still many formulations of Ayurveda are waiting for its reach to the common public that have been claimed for its clinical connotations for beauty and glowing skin; the first desire of women of any age. Tremendous business opportunity is hidden in the literature of Ayurveda for which we invite everyone interested to serve humanity through Ayurveda.

Key words: Cream, cosmeceutics, *Lepa*, nutraceutics, therapeutics

INTRODUCTION

Every fine morning, all across India we witness advertisements claiming fairness, glow, pimple free skin, and many more clearly violating norms of Drugs and Magic Remedies Objectionable Act, 1954. It is more pain full when all these unethical, immoral, and illegal activities are under the umbrella of Ayurvedic medicines. Fortunately, 1 day we perceived an idea to write an authentic review article on several aspects of Ayurvedic *Lepa Kalpana* with emphasis on its therapeutic and cosmeceutic properties. Our aim is to sensitize every stakeholder of Ayurveda and member of common public about the goodness of Ayurvedic *Lepa Kalpana* and to prevent them from the exploitation of misbranded, adulterated, and spurious *Lepa* available in the market in the name of Ayurvedic medicines.

Common problems with Ayurvedic *Lepas* are stains after its application, smell, sensitivity, and sterility. Greasiness, fluidity, frequency of flow is another concern for *Lepas* of Ayurveda origin.

In this review paper, we had tried to gather all information at one place to get the solution of all these problems to prepare perfect *Lepa* of Ayurveda at par to present day pharmaceuticals.

Lepa Kalpa in Ayurvedic Classics

Authors have tried to put all relevant information about *Lepa Kalpa* described in classics of Ayurveda at one place for the revelation of its main characteristics. We focused on the type of ingredients used in *Lepa Kalpa*, methodology, indications, and finally a total number of classics.

It is surprising that in many classics a specific nomenclature has not been preferred. Instead of the particular name of a *Lepa Kalpa* in chapters of *Chikitsa Sthana* or at any other

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place, only name of ingredients and indication have been discussed. These ingredients are varying in number and nature as per specific pharmacological actions where it has been incorporated for a specific ailment.

Lepa Kalpa in Charaka Samhita

Acharya Charaka had prescribed Lepa to treat his patients and taught his disciple same through Charaka Samhita. In chapters of Chikitsa Sthana, several Lepa are indicated to treat Kushta, Sidhma, Rajayakshma, Shotha, Arsha, Visarpa, Madatyay, Vrana, Khalitya, Palitya, Vatarakta, Yonivyapad, and Stanya Vikara.

Ingredients mentioned for Lepa Kalpa in Charak Samhita are from all three origins of Materia Medica of Ayurveda, i.e. herbal, mineral, and animal. Apart of herbals which are plenty in number, Saindhav, Sauvarchala, Ksharas, various metals and minerals such as Naga, Vanga, Loha, Pinda, Hartal, Manahshila, Kasis, Tuttha, Gairika of mineral origin; Gorochana, Gomutra, Gudugdha, Ajadugdha, Kukkuta Shakruta, Kapota Vishtha, Goshakruta, Gajashthi, Vasa of camel; and Chuluki Matsya, Godharasa, Loma, Khura Shringa of various animals are used in preparation of Lepa Kalpana.

Interestingly, Acharya Charaka had not classified Lepa on any basis but mentioned 32 pradeha for Bahirparimarjana (external application) in Sutra Sthana.^[1] In Chikitsa Sthana, Pralepa and Alepa word mentioned in Viraspa chikitsa and 83 Lepas are found mentioned apart from 32 Pradeha. Thus, a total number of Lepa Kalpa in Charak Samhita is 115.

Lepa Kalpa in Sushruta Samhita

Systematic description of Lepa along with its classification as Pralepa Pradeha Alepa depending on modalities of application is described by Acharya Sushruta.^[2] Acharya has also mentioned Anulepa as a synonym of Lepa along with its therapeutic significance.^[3] The main indications to be treated from Lepa are Shashti Vrana Upakrama (60 steps to treat wound)^[4] Krishnakarma, Pandukarma, Romasnjana, Lomapaharan, etc. These Lepas mentioned by him indicates the cosmetic value of Lepa. Sushruta also indicated many Lepas in the treatment of Vatarakta, Arsha, Ashmari, Kushtha, Dadru, Shwitra (Lepa Gutti) (Varti), Galita Kushtha, Vidradhi, Visarpa, Granthi, Arbuda Galaganda, Upadansha, Shleepada, and Kshudraroga.

Ingredients mentioned for Lepa Kalpa in Sushruta Samhita are from all three origins, i.e. herbal, mineral, and animal. Apart of herbals which are abundant in number, Saindhav, Sauvarchala, various Ksharas Sarjiksara, Yavakshara, Palashakshara, Masi such as Hastidanta masi, Krishnasarpa masi, Minerals such as Kasis, Tuttha, Hartala, Manahshila, Gairik, Rasanjana, Mandura and Ghrita, Taila, Vasa, Majja, Gorochana, Gomutra,

Gudugdha, Putikita, Loma, Khura Shringa of various animals are used in preparation of Lepa Kalpana.

In Sushruta Samhita in Chikitsa Sthana and Uttartantra total 105 Lepas are found mentioned to treat above mentioned diseases.

Lepa Kalpa in Ashtang Sangraha

Acharya Vagbhata has elaborated the classification of Lepa according to its therapeutic application, e.g. Snaihika, Nirvapana, Prasadana, Sthambana, Vilayana, Pachana, Peedana, Sodhana, Ropana, Savarneekara.^[5] The oleaginous bases should be used in those Lepas, which are expected to have Snehana, Nirvapana, Prasadana, Ropana, and Savarnikarana properties. The other bases such as Kanji, Gomutra, and lemon juice, possess very different properties such as Ushna, Tikshna, and Vishada than the previous one.

Total Lepas mentioned in Chikitsa Sthana of Astang Sangraha is 87.

Lepa Kalpa in Ashtang Hridaya

In Astang Hridaya, Lepas are mainly indicated in Jwara, Rajayakshma, Arsha, Atapaj Trishna, Ekanga Shopha, Visarpa, Kushtha, Dadru, Shwitra, Sidhma, Vipadika, etc. Acharya Vagbhata followed Acharya Charaka's principle of treatment in the context of Lepa. Doshaghna, Vishaghna, Varnakara (according to therapeutic and cosmeceutic purpose) are classified systematically.^[6]

Ingredients of plant origin such as Rala, Guggula, Laksha, Kampillaka along with the Visha-Upavisha Varga Dravya like Vatsanabha, Karavira Gunja, Bhallataka Arka, Snuhi, Langali, including ingredients of animal origin such as Gomutra, Kukkuta Vishtha, Gajasthi, Goat's urine, Godugdha, Takra. Ingredients of marine origin like Mukta, Shankha, Praval; minerals such as Hartal, Manashila, Kasis, Tuttha, Gairik, Gandhak; various salts, such as Saindhava, Sauvarachala, Yavakshara, and Grihadhum, are found mentioned.

The main contribution of this Samhita is the description of different Mukhalepa according to various seasons. This explains the cosmetic value of the Lepa. Some ingredients of these Lepas, which are indicated in different seasons, are given as under mentioned.^[7]

- Hemanta - Kolamajja, Vasamoola, Sabara Lodhara, Gaurasarshapa
- Sisira - Simhimoola, Krishnatila, Darvitvak, Nistusha Yava
- Vasant - Darbhamaoola, Chandana, Useera, Siresha, Misi, Tandula
- Grishma - Kumuda, Utpala, Kalhara, Doorva, Madhuka, Chandana
- Varsha - Kaliyaka, Tila, Useera, Mamsi, Tagara, Padmakh

- *Sarad - Taleesapatra, Gundra, Pundarika, Yashtimadhu, Kasha, Tagar, Aguru.*

Total 50 *Lepas* found mentioned in this text book in *Chikitsa Sthana*.

Lepa Kalpa in Sharangadhara Samhita

Acharya Sharangadhara had classified the *Lepa* into three categories as *Doshaghna, Vishaghna, and Varnya Lepa*.^[8] *Sharangharacharya* had mentioned some interesting *Lepas* such as *Kitaghna Lepa, Suryavartahar, Ardhabhedakahara, Kurandhara, Yoni Sankochaka, Yonidravaka, Lingavriddhikara, Stanavriddhikara, and Vashikarana Lepas*. The nomenclature of *Lepas* depends on either the prime ingredient in *Lepa (Langalyadi Lepa)*,^[9] total content in the *Lepa (Dashang Lepa)*^[10] or disease (*Shvitrahara Lepa*)^[11] it cures. *Sharangadhara* also mentioned various ingredients of plants, mineral, marine, and animal origin such as *Dhattura, Postadana, Shankha, Hingula, Swarnamakshika, and Parada*.

In *Sharangadhara Samhita*, total 91 *Lepas* in the separate chapter are mentioned.

Lepa Kalpa in Bhavprakash

In *Bhavprakash*, *Lepas* are mainly indicated in diseases such as *Jwara, Arsha, and Shotha*. Disease wise description of *Lepas* is there but no specific nomenclature of *Lepa* found. The author also emphasized the cosmetic value of *Lepa*, e.g. *Mukhakantikara Lepa*^[12] and *Savarnatakarak Lepa*.^[13]

Ingredients of *Lepa* are very much similar as quoted in other treatise of Ayurveda. Total 208 *Lepas* are mentioned in this book.

Lepa Kalpa in Yogaratnakara

The author had followed *Bhavprakash* in many references and mentioned *Rasadi Lepa*,^[14] *Paradadi Lepa Gutti*^[15] and incorporated *Rasakarpura* for treating *Upadansha*.^[16] In *Yoga Ratnakar*, *Lepa* are mainly indicated in *Arsha, Visarpa, Shotha, Shoola, Antravridhi, Gandamala, Apachi, Snayuka, Sheetapitta, Masurika, Aparapatan, and Lingavridhi*.

Ingredients of *Lepa* described in this treatise are from herbal, mineral, and animal origin.

Yoga Ratnakar had described total 267 *Lepa*.

Lepa Kalpa in Sahastrayogam

In *Sahastrayogam*, *Lepas* are called *Kulambu*. They are not mentioned in a separate chapter, but the specific name is

given to every *Lepa* like *Ayavu Kulambu (Peshisiragraha) Arbudahar Lepa, Padavidarika Lepa, Karna Paliposhak Ghrita Lepa, Kunakhahara Lepa, Vrana Lepa, and Bhagandarhara Lepa*, mentioned in *Vati Prakaran*.^[17]

Sahastrayogam mentioned *Lepas* in *Churna Prakaran* such as *Kaccuradi Churna* (with *Stree Dugha Lepa* applied overhead), *Rasnadi Churna* (with *Erand taila* for *Bhrama, Murccha, Shirovikar*),^[18] *Guggulyadi Taila* for *Kushtha, Eladi Taila* for *Kandu, Pitika, Kotha* is advised. *Dineshvallyadi Taila* is recommended for reducing blemishes of skin and making skin glowing, *Dhudhuradi Taila* for hair fall is given in this text.^[19] Similarly, *Pralepa of Paparnadi Ghrita* for *Vridhi* is given.^[20] *Palash Kshar Lepa* for *Kushtha* mentioned in *Bhasmaksharadi yoga*.^[21]

Lepa Kalpa in Ayurvedic Formulary of India (AFI)

In AFI, the committee recommended *Lepa* from various texts such as *Ashtang Samgraha, Ashtang Hridaya, Ashtang Samgraha, Bhaishajya Ratnavali, Sharangdhara, and Sahastrayogam*.^[22]

In this document, total 12 *Lepas* for the treatment of different disorders are mentioned.

Lepa Kalpa in Contemporary Therapeutics

Technology development is a key area of progress. Taking indication from the classics, cream/ointment of Ayurveda has been/is being developed free from all common problems of applications of old *Lepa*. In these new Ayurvedic creams, herbs are main ingredients and for better pharmaceutical properties these are added with new substances which have properties of a better base for the cream/ointment with some other excipients.

Therapeutic properties of Ayurvedic cream/ointment (*Lepa*) have been established by researches of contemporary period which are:

1. Various Ayurvedic cream formulations containing *Haridra (Curcuma longa)* have been established for antibacterial and anti-inflammatory activities.^[23]
2. The sunflower (*Helianthus annuus*) and pumpkin (*Cucurbita pepo*) seed oils as well as *Atasi* or flax or linseed oil (*Linum sp.*), which have a high fatty acid content mainly linoleic and linolenic acids, were incorporated into Ayurvedic preparation for dermatological treatments including acne.^[24] In addition to those natural oils, *Karpas seed (Gossypium sp.)*, *Draksha (Vitis vinifera)*, *Shigru (Moringa oliefera)*, *Ahiphena (Papaver)*, rapeseed (*Brassica napus*), *Tila (Sesamum indicum)*, *Vatad (Prunus amygdalus)*, *Akshotak (Juglans regia)*, and *Yava (Triticum vulgare)*, which contain more than 10% (w/w) of linoleic acid are also used in the treatment of acne.^[25]
3. Basil, canella, caraway, cayenne, celery, cinnamon,

chilli, coriander, fenugreek, parsley, mint, mustard, oregano, paprika, pepper, rosemary, sage, turmeric, and thyme are used as natural sources of salicylic acid in Ayurvedic topical preparations.^[26,27] These herbs and spices in addition to fruits, for instance lemon, have been found to contain free salicylic acid in high content.^[28]

4. Ayurvedic creams worked as anti-inflammatory (Shothahara). These creams protect the skin against allergens, inflammatory substances, chemicals and even stress, this group of herbs provide the anti-inflammatory effect, essential to all anti-aging formulations. Rose petal, silk cotton tree, and *Kumari (Aloe vera)* are Shothahara herbs with appropriate anti-inflammatory properties used in Ayurvedic cream.
5. Ayurvedic ointment works as protection from normal wear and tear (*Sandhaniya*) of skin. *Sandhaniya* herbs help coalesce discontinued tissue, and in healing and regenerative functions of the skin, repairing effects of aging. "Sensitive plant" enhances healing and regeneration of the nerves by 30-40%.
6. Deep healing (*Vranaropana*) is another feature of Ayurvedic cream. Topical agents used for wound healing includes antibiotics, antiseptics, and disloughing agents (that causes chemical debridement). Phytochemical entities isolated from plants such as flavonoids and phenolic agents often used in wound treatment. The herbs, such as *Guggula*, *Amla*, *Manjisha*, *Yashtimadhu*, and *Shankha Bhasma* (a mineral), have been reported to promote skin tensile strength and epithelial formation. *Vranaropana* herbs enhance deeper healing.^[29] *Jati* extract along with ghee accelerates wound healing.^[30] *Neem* oil is used for dressing foul ulcers, eczema, ringworm. *Neem* leaf extracts possess antimicrobial property.^[31]
7. *Sharapunkha (Tephrosia purpura)* have antibacterial, antiulcer, anticancer properties due to its phenols and flavonoids such as quercetin. *Neem (Azadiracta indica)* and *Khadir (Acacia catechu)* are widely prescribed to treat acne, psoriasis, and eczema. Gum resin exudates of *Boswellia serrate* have been used in the Ayurvedic system of medicine in the management of several inflammatory conditions as a constituent of cream of Ayurveda origin.^[32]

Lepa Kalpa as Cosmeceuticals

The origin of Ayurvedic cosmeceuticals goes date back to the Indus Valley Civilization. The use of cosmetics was not only directed toward developing an attractive external appearance but toward achieving longevity with good health. There is evidence of highly advanced concepts of self-beautification and a large array of cosmetics used by both men and women in ancient India. Many of these practices depended on the season (Rutus) and were subtly interwoven with daily routine (Dinacharya).^[33]

The whole range of cosmetic usage and its practice as conceived by the ancient Indians was based on natural

resources. Skin care procedures forming the daily routine described in Ayurvedic literature consist of numerous formulae involving herbs and other natural ingredients. They were used as external applications in the form of packs, oils, herbal waters, powders, etc. Applications of these as pastes have been classified into several kinds based on the temperature, duration and thickness of application, the effect of the application for healing, beautifying, anti-aging, etc.^[34,35]

Ayurvedic skin brightening agents are mostly compounds, which function by mechanism effecting melanin synthesis. Many Ayurvedic extracts from herbs, such as *Nagakeshar (Ferula narthex)*, *Yashtimadhu (Glycyrrhiza glabra)*, *Amalaki (Embelica officinalis)*, *Shalmali (Morus alba)*, have been demonstrated to be effective. *Haridra (C. longa)* is the Ayurvedic gem for which skin brightening effects are attributed to its antioxidant properties. However, there have been constraints in its use for topical application due to its colored nature.^[36]

VARIETY IN CONSTITUENCIES OF LEPA KALPA

Ayurvedic *Acharya* has indicated a variety of *Lepa* with different ingredients varying from number to nature (Table 1). These are presented as under;

Lepa Kalpana in Concurrent Market

In contemporary market, there is flood of Ayurvedic cream/ointment covering a range of full therapeutics and cosmeceuticals. In the range of therapeutics, it consists of analgesic, anti-inflammatory-wound healing, etc. Where as in thrust areas of cosmeceuticals it covered all aspects of beautifications.

The analgesic Ayurvedic market is comprised mainly for topical analgesics. Ayurvedic formulations contribute over 70% to the total OTC sale of topical analgesics. In fact, the top brands in the topical market, such as Vicco turmeric,

Table 1: Lepa as a single to multiple ingredients

Ingredients	Description	Reference
One	<i>Gunja (Indralupta)</i>	Su.chi. 20/25
Two	<i>Tilakalka+Madhu (Kaphaj Upadansha)</i>	Su.chi. 19/38
Three	<i>Gambhari, Mulethi, Yava (all types of Vatarakta)</i>	Su.chi. 5/12
Four	<i>Nyagrodha, Kadali, Bisha, Shatadhauta Ghrita (Visarpa)</i>	Ch.chi. 21/73
Five	<i>Danti, Trivritta, Tuttha, Kapota vishta, Gudha (Arsha)</i>	Ch.chi. 14/54

No Mark, Himami Boroplus, have already established its position. The top brand in the analgesic market of Ayurveda (Zandu Balm, Moov, and Amrutanj) competing closely with diclofenac brands such as Volini. Recently Volini Activ, an Ayurvedic variant of Volini, was also launched. While Diclofenac Volini has been trusted and recommended by doctors. Many more Ayurvedic cream/ointment/gel under section 3 (h) of Drugs and Cosmetics Act, 1940 are in the market.

RULES FOR APPLICATION OF AYURVEDIC LEPA

The Ayurvedic manoeuvre suggests that *Lepa*, i.e. the topical formulations should be gently rubbed in an upward or reverse direction of the hairs over the skin.^[37] This method of rubbing increases the skin temperature which might be hastening the pilosebaceous uptake and skin permeation of the drug in the topical formulation.^[38] Never allow the *Lepa* to get dry^[39] *Lepa* should not applied at night.^[40] Stale *Lepa* should not be used.^[41] Avoid application on and on.^[41] All these rules are addressed for proper absorption and avoiding any ill effects of *Lepa*.

Thickness of *Lepa*

Acharya Sushruta instructed that the Thickness of *Lepa* should be equivalent to moist buffalo's skin.^[42] It is 4-5 mm approximately. Hence, a *Lepa* having thickness <4-5 mm should be considered as "Thin *Lepa*" and greater should be considered as "Thick *Lepa*." Whereas *Acharya Charaka* clarifies that when a rubefacient action of a drug is expected, it should be applied uniformly thick over the skin. However, when softening and soothing action is to be elicited, the drug should be applied uniformly thin over the skin. In fact, this statement interprets the mode of application of a drug as per the requirement and not the properties of the mentioned drugs.^[43] Modern pharmaceuticals has not laid down any such norms. It recommends only a uniform application over the affected skin surface.

Shelf Life Period of *Lepa*

If a *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, the drugs themselves do 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*, *Ghritha*, and *Taila*, all other Ayurvedic bases have the propensity to go rancid within 24 h.^[22]

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 Gutti* is 3 years.^[44]

Contemporary Cream/Ointment as Nutraceuticals

Nutraceutical supplements are receiving increasing consumer acceptance, creating demand for new product innovations based on superior delivery systems most current delivery systems for nutraceutical products are based on direct ingestion. These oral delivery systems pose issues relative to their unacceptable odor and taste and degradation of the nutraceutical itself during its transport from the digestive system to the site of the desired action. Topical delivery systems circumvent some of these issues due to their application near or at the site of affliction.^[45]

Nutraceuticals-based topical delivery systems can be formulated as functional cosmetics (cosmeceuticals) to complement the efficacy of their ingestion-based counterparts. However, the product development of these functional cosmetics faces challenges unique to each nutraceutical ingredient and their targeted performance attributes. For example, the inclusion of dietary fiber in a functional cosmetic to provide reduced cancer risk. Benefits of the fiber are not viable due to insignificant absorption of that fiber through a topical delivery system. The incorporation of nutraceutical supplements in functional cosmetics requires special considerations relative to the aspects of product appearance, dosage level, cosmetic benefits, storage stability, bioavailability, efficacy, and cost. Those activities require a combination of cosmetic and pharmaceutical product development technologies.^[46]

DISCUSSION

An analytical interpretation of all information available in Ayurvedic classics regarding *Lepa Kalpa* right from ingredients to indication are establishing richness of subject on the basis of academic and clinical acumen. *Acharyas* have had emphasized each and every minute detail for best therapeutic and cosmeceutics effect. Out of all these augmentative scores in relation of *Lepa Kalpa*, authors are trying to keep few points in order for further advancement of the subject which are:

The Ayurvedic skin care products which are used externally (topically) in the form of packs, oils, herbal powder, pastes, etc., are classified on the basis of the temperature, duration, and thickness. The Ayurvedic bases for *Lepa Kalpa* are not inert substances, but they are therapeutically active too. Also the bases, as such, do not fulfill the criteria for an ideal base laid down by modern pharmaceuticals; still they are much more than that in efficacy.^[38] Various flowers, such as *Jati*, *Kamal*, and *Ketaki*, are added to the *Lepa* gives fragrance to the *Lepas*. Many Ayurvedic plant acts as emollients such as *A. vera*, peanut extract, and *Sarshap*. Many plants that possess antioxidant property may be used as a preservative in *Lepas* such as *Haridra* and *Karavellak*.^[47] (Table 2).

Table 2: Comparison of additives used in *Lepa*

Additives	Modern	Ayurveda
Bases	Paraffin wax, fat oil	<i>Siktha</i> , castor oil
Antioxidants	Butylated hydroxy anisole, propyl gallate, nor-dihydroguaiaretic acid	<i>Raktachandan</i> , <i>Masoor</i> , <i>Haridra</i>
Chelating agents	Maleic acid, phosphoric acid	<i>Nimbu</i>
Tragacanth	Polysaccharides	<i>Methika</i>
Aromatics	Jasmine, rose, lily	<i>Jati</i> , <i>Chandana</i> , <i>Ela</i> , <i>Kamal</i>
Emollients	Glycerine, glyceryl triacetate	<i>Sarshap</i> , <i>Champaka</i> , <i>Kumari</i>
Penetration enhancers	Dimethyl sulfoxide, azone, ethanol	<i>Gomutra</i> , <i>Kanji</i> , <i>Takra</i> , <i>Sura</i>

The main disadvantage of transdermal drug delivery is the poor penetration of most compounds into the human skin. The main barrier of the skin is located within its uppermost layer, the stratum corneum. Several approaches have been developed to weaken this skin barrier. One of the approaches for increasing the skin penetration of drugs and many cosmetic chemicals is using vesicular systems such as liposomes, neosomes, and ethosomes. Ethanol is known as an efficient permeation enhancer and has been added in the vesicular systems to prepare elastic nanovesicles.^[48]

In Ayurveda too various alcoholic preparations are incorporated in various *Lepas*, such as *Kanji*, *Sauviraka*, *Tushodaka*, *Sura*, and *Prasanna*, are seem to enhance the penetration of *Lepas*. The concept of niosomes (non-ionic surfactant vesicles) obtained on hydration is microscopic lamellar structures formed on combining non-ionic surfactant of the alkyl or dialkyl polyglycerol ether class with cholesterol.^[49] It is comparable to the *Shatadhauta Ghritha* as it is obtained by repeatedly washing of *Ghritha* by water. The penetration enhancer like *Gomuta* is also used in many *Lepas*. *Gomutra* contains urea which is a potent penetration enhancer.

PROBABLE MECHANISM OF ACTION OF AYURVEDIC COSMECEUTICALS^[32]

In this review, we are proposing a few probable mechanisms which may be responsible for the action of Ayurvedic cream/ointment. These are:

1. Age defying activity (*Vayasthapana*) – The ingredient that nourishes the skin and ensures its optimum physiological functions and has an overall anti-aging property is called *Vayasthapana*, which literally means “maintaining youthfulness” or “arresting age.” *Vayasthapana* herbs give overall support to the skin by keeping all three *doshas* in balance. *Centella asiatica*

is the foremost *Vayasthapana* herb with anti-aging effects; one of its many properties is to enhance collagen synthesis.

Amalaki (*Phyllanthus emblica*), a potent antioxidant, rich in Vitamin C, tannins, and gallic acid, is foremost among the anti-aging drugs (*Vayasthapana*) or best among the rejuvenating herbs; it has properties such as *Rasayana* (adaptogenic), *Ajara* (usefulness in aging), *Ayushprada* (prolongs cell life), *Sandhaniya* (improves cell migration and cell binding), and *Kantikara* (improves complexion). In 2008, mintel picked up 46 haircare, 45 skincare, 8 color cosmetics, and 2 soap/bath launches containing *Amalaki*. Thus, we can see that use of *Amalaki* for cosmetic purposes.

2. Youthful radiance (*Varnya*) – An important group of herbs called *Varnya*, has the ability to enhance the radiance or bright complexion of the skin. If the skin does not have a healthy glow or *Varnya* quality, then it is not considered youthful in Ayurveda. *Varnya* herbs include sandalwood, vetiver, Indian madder and Indian sarsaparilla, and so on.
3. Enhancing and nurturing (*Tvachya*) – These herbs support moisture balance and provide overall nourishment to the skin. Gotu Kola, silk cotton tree, costus, and rose petal are the most widely used. Grapefruit extract and natural sources of Vitamins A, C, and E nourish the skin.
4. Strengthening the skin’s metabolic mechanisms (*Tvachagnivardhani*) – This means literally to enhance the luster of the skin by enhancing the skin’s metabolism. As one age, metabolism generally slows down; similarly, skin metabolism also weakens. If enzymes become imbalanced, metabolic toxins are created *Ama*. *Ama* in the skin clogs the channels, leading to wrinkles, dryness, and other signs of aging. Clogged channels also create dullness and lack of youthful glow. Application of *C. asiatica* enhances enzyme principles; topically, it improves circulation early. Furthermore, by removing *Ama* and deep impurities, it helps prevent varicose veins, cellulitis, aging skin, and weakened immunity to allergens and skin diseases.

Modern pharmaceuticals is exploring many ointment, liniment, lotion, gels, creams paste, etc. Ayurveda too is not lagging behind they had developed the *Lepa* in the form of *Churna*, *Kalka*, *Rasakriya*, *Masi*, *Kshara*, etc (Table 3). Various bases are mentioned in Ayurveda they are oleaginous (*Taila*, *Ghritha* *Shatadhauta Ghritha*, *Siktataila*). Though the efficiency of the above said oleaginous bases is beyond doubt, their acceptability is very less because of their greasy nature and a peculiar rancid odor they render to the skin. Such bases are emollient but generally require the addition of antioxidants and other preservatives.

Authors are of the opinion that present day Ayurvedic cream/ointment/gel has overcome all problems of pharmaceuticals by adapting all advanced technologies.

Table 3: Different dosages forms of *Lepas*

Dosage forms	Disease	References
<i>Kalka</i>	<i>Valmik</i>	Su.chi. 20/51
<i>Lepa Guti</i>	<i>Shwitra</i>	Su.chi. 9/21-22
<i>Varti</i>	<i>Shwitra</i>	Su.chi. 9/25-26
<i>Rasakriya</i>	<i>Kushtha</i>	As.h.chi19/61
<i>Churna</i>	<i>Kaccuradi Churna (Shiroroga)</i>	<i>Sahastrayogam, Churna Prakaran</i>
<i>Kshara</i>	<i>Palash Ksara (Kushtha)</i>	<i>Sahastrayogam, Bhasmaksharadi Yoga</i>
<i>Masi</i>	<i>Shwitra</i>	Su.chi. 9/17

CONCLUSION

Ayurveda had reached the zenith of knowledge in the *Samhita Kala* regarding the application of *Lepa Kalpa* for therapeutic and cosmeceutics purposes. Moreover, in contemporary era here are tremendous opportunities for further advancement of *Lepa Kalpa* for much better therapeutic, cosmeceutics, and neutraceuticals purposes by adopting current science and technology.

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