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AN ANCIENT AND MODERN PHARMACEUTICAL APPROACH ON - MALHARA KALPANA

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ABSTRACT-

BhaishajyaKalpana is one of the most essential branches of learning in the science of *Ayurveda*. Among the innumerable dosage forms *MalaharaKalpana* is one of them in *BhaishajyaKalpana*. *Malahara Kalpana* is the ointment preparation which has *Sikthataila* (beeswax and oil mixture) or *ghrita*, as the basic constituent. The other ingredients may include herbal, metal or mineral contents depending upon the usage. *Rasa Tarangani* a *Rasa Shastra* treatise of 20th century by Acharya Sadananda Sharma has enumerated various types of *Malahara Kalpana* taking mainly *Siktha Taila* as a base. Though this *Kalpana* holds firm roots in treating diseases the mention and explanation of this particular topic is scattered in this treatise. Hence the present article is an attempt to elucidate and unfold the *Malahara Kalpana* of *Rasatarangani*. In nut shell, a short review over historical background reveals that from *Vaidika* period to modern period various evolutionary changes in the preparation of *Malahara Kalpana* have taken place. During *Vaidika* period, simply a paste of drug was applied but later on other materials like *Navaneeta*, *Ghrita* etc. were started to add, with an intention to make them more potential.

Keywords: *Malaharakalpana*, *Ayurveda*, *Bhaishajya Kalpana*, *Ointments*

INTRODUCTION

The word *malahar* was adopted by *yogratnakara* from the word *malaham* or *maraham* basically originated from *unani* system of medicine. This is called as *malahara* because it removes *mala* (residue etc) from *vra*na, *vidradhi*, *twak vikara* etc. conditions. *Malahara* has a property like *Snehana* (oleation), cleansing, *Ropana*

(healing), Lekhana (scaraping), and Varnya (beautifying), depending on the drugs used in the preparation.

The percentage of curing and prevention of diseases is highly dependable on the treatment aspect. The treatment principles in turn are based on the proper and adequate knowledge of pharmaceutics without which no drug can be possibly formulated or utilized efficiently. This is where the science of *BhaishajyaKalpana*, the *Ayurveda* pharmaceutics comes to limelight. *Ayurveda*, not only science but a holistic way of living stands on the pillar of *Trisutras* i.e. *Hetu, Linga and Aushadha*. Among all of these the latter is held responsible for the alleviation of diseases as well as maintenance and promotion of health. The drug, irrespective of its origin (animal, herbal or mineral) acts as an instrumental aid to a physician and hence has been placed next to the physician amongst the quadruples of treatment. No branch of *Ayurveda* can exist independently *without the aid of Aushadha or Bhesaja*. With the art and skill of formulation drugs can be made effective and knowing this *Ayurveda* has laid emphasis to the comprehensive and analytical knowledge of drugs; including-identification, procurement, processing, preservation, preparation and dispensing of prepared medicines under abroad heading known as “*BhaishajyaKalpana*”. The roots of *BhaishajyaKalpana* dates back to the *Samhita* period evidentially. The principles of pharmaceutics and various formulations explained in the *Samhita* period hold a very high esteem till date in both traditional and modern pharmaceutics. With the development of *Rasashastra*, this branch of learning came to be recognized independently as an important science. Though the knowledge of various dosage forms is available and is pre-requisite to all *Ayurveda* physicians one still finds dearth of few dosage forms. Unani System to the origin of *Marahama Kalpana* from *Ayurvedic Lepa Kalpana*.

Names in Different Languages and Synonyms

- Sanskrit: *Malahara*
- Latin: Unguentum
- English: Ointment
- Hindi: *Malahama*
- Gujarathi: Malam
- Marathi: Malam
- Arabi: Marahama
- Unani: Malahama

LITERATURE REVIEW

Vaidika Kala

Though not named as *Malahara* but the clear references in *Vedas* regarding the fascinating operations done by *Ashwinau*, denotes that these operatives could never be done without amalgamated substances for external application particularly *Sandhana* of head of *Yagna Visphalas* artificial limbs etc. Considering these; one can presume that *Malahara Kalpana* must have been existing during *Vedic Kala* in some or the other forms like *Lepa Kalpana*.

Samhita Kala

Existing *Malahara* could not get its name in *Brihatrayi*, but the concept of external applications was persisting under various subheadings. *Charaka* has used the terminologies like *Alepa*, *Pradeha* and *Pralepa* and likewise once in the contexts of different diseases. *Lepa* enjoys a full chapter in *Surtrasthana* of *Charaka Samhita* named *Aragvadhijya Adhyaya*,^[1] Medicaments for topical applications with *Malahara* consistency are available in *Charaka Samhita*. As being more concerned with surgery and wounds, *Sushruta* has described and classified *Lepa* extensively and has mentioned *Lepa* as one of the prime external line of treatment of *Vrana*.^[2]

Many *Vyadhi Pratyanyika Lepas* have also been recommended. Authors of *Ashtanga Sangraha* and *Hridaya* have mentioned *Lepas* with some new classifications more useful for cosmetic purposes as *Doshaha*, *Vishaha*, *Varnakruta*.^[3]

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Madhya Kala

Sharangadhara,^[4] and *Bhavaprakasha* have mentioned and classified *Lepa* with broad spectrum effects with new methods of their preparations. Other texts like *Gadanigraha* and *Yogaratanakara* have also mentioned several *Lepas*. Many *Rasa* classics like *Rasaratna Samucchaya*, *Rasa Prakasha Sudhakara* etc. have also mentioned *Lepas* in various diseases and by more or little modifications.

Aadhunika Kala

Sadananda Sharma in *Rasatarangini* introduced *Rasa Puspa Malahara*,^[5] used for *Phiranga Vrana*. Later on in the text, several *Malahara yogas* have also been prescribed like *Hinguladya Malahara*, *Sindhuradya Malahara*, *Gandhakadya Malahara* etc. In modern pharmaceutical trends *Malahara Kalpana* may be compared with ointment and it plays an important role in external route of administration of drugs.

In *Samhitas*, bases like *Taila*, *Ghrita*, *Madhucchistha*, *Sarjarasa* etc. have been used which shows evolution. As example, *Charaka* in *Kushtha Chikitsa* has prescribed *Vipadikahara Ghrita*,^[6] which is to be prepared with drugs like, *Jivanti*, *Manjishtha*, *Darvi*, *Kampillaka*, and *Tuttha*.

Preparation of Malahara

Method 1

Malaharas are prepared by adding bases like *Sikhta*, *Sarjarasa* etc. to the *Sneha* (*Pakva* or *Apakva*) and mixed well to get the desired consistency, smoothness and softness. In the preparation of *Sarjarasa Taila*,^[7] (*Malahara*), *Tila taila*, *Aarnala* and *Sarjarasa* are taken till complete evaporation of water and proper dissolution of *Sarjarasa* in *taila* occurs. Then *manthana* is done till the complete achievement of *Malahara* like semisolid consistency. Here to obtain *Malahara*, *Manthana* process has been emphasized. Exceptionally in certain *lepas* like, *Bhallataka Shothahara lepa*,^[8] *Navaneeta* is used as base in the place of *Madhucchistha*. Two types of *Sikhta Tailas*,^[9] have been available in *Rasa Tarangini*. One is prepared with *Sikhta* and *taila* in ratio of 1:5 while the other in the ratio of 1:6, former can be used in hot season, while later can be used in cold season. Here it is interesting to note that there are variations in the preparation of bases according to the season also.

Method 2¹⁰

Generally paraffin wax, *Ghrita*, *Tila taila*, *Gulrogan*, *Sarasava taila*, fat etc. are used as the base in the preparation of *Marahama*, amongst which paraffin is mainly used. During the preparation, paraffin and oil are mixed together by heating process and gum like substances are added and mixed well. Then other medicinal substances are added and stirred well till cooling. Pure fat can also be used in place of paraffin.

Substances like *loban* are added to this fat to prevent rotting and bad smelling. If there are other easily melting substances like *Ushaph*, *Guggulu*, *Gandhabiroja* etc. to be mixed in *Marhama*, they should be melted along with paraffin. Some substances are mixed in cold process where the materials are triturated together to form a homogenous compound. If such materials like white of egg or opium are to be mixed, they will be added to the mixture of oil and paraffin after taking them out of fire. It is further suggested that the powder material to be mixed in *Marhama* should be in very fine state and they will be mixed by triturating thoroughly. When volatile substances like camphor are to be mixed, they should be added at the end of preparation. Regarding the ratio of oil and paraffin, 2:1 is the common standard even though there

is difference of opinion about this. According to *Unani* principles, *Marahama* is a stable preparation having a period of activeness upto twenty years.

Table 1: Showing the Qualities of Sikta.¹¹

<i>Rasa</i>	<i>Madhura rasa</i>
<i>Guna</i>	<i>Snigdha, Picchila</i>
<i>Karma</i>	<i>Sandhanakara, Vranaropaka, Bhutaghna</i>
Indications	<i>Bhagna, Vrana, Visrapa, Kandru, Kushta, Vatarakta, Varnya etc.</i>
Shelf life	1 year

Table 02: Showing the name, ingredients and uses of various *MalaharaKalpana* in *Ayurveda* classics.¹²

Sl.no	Name	Ingredients	Indication
1.	2) <i>Rasapushpa malahara</i> 10:	<i>shatadhauthaghrita, rasapushpa</i>	<i>Vranaroga</i>
2.	8) <i>Shwethamalahara</i> 15:	<i>Siktataila, Rala, tuttha.</i>	<i>Dagdhavrana.</i>
3.	<i>KarpooradiMalahara</i>	<i>Parada, Gandhaka, Kunduru, Guggulu, Loban and Karpura.</i>	<i>Vidradhi, galaganda, nadvrana.</i>
4.	<i>RalaMalahara</i>	<i>Tilataila, Rala, Tuttha</i>	<i>Agnidagdhavrana, Mutrendriyashot ha, Arsha.</i>
5.	<i>VranamrtaMalahara</i>	<i>Gandhabiroja, Ralachoorna, Alasitaila and sikta</i>	<i>DushtaVrana, Upadamshajavrana</i>
6.	<i>VranamrtaShwetaMalahara I</i>	<i>Karpooora, Siktataila, Safeda.</i>	<i>Vranaroga</i>
7.	<i>VranamrtaShwetaMalahara-II</i>	<i>Guggulu, kapardikabhasma, suparibhasma, ela, katha, shatadhoutaghrta</i>	<i>Vranaroga.(Agnidagdhavrana)</i>
8.	<i>GulabiMalahara</i>	<i>Kokum taila, erandataila, safeda, sindoora</i>	<i>Vipadika</i>
9.	<i>ChurnaMalahara</i>	<i>Sudhachoorna, karpas, erandataila</i>	<i>Puyayuktavrana, Dushtavrana, Nadvrana</i>
10.	<i>DarunanashakaMalahara</i>	<i>Tuttha, Gairika, Kattha, Kalmishora, Mruddarashrng, Maricha, Mehndi, Sikta, SarshapaTaila.</i>	<i>Darunaka, Arumshika, Indralupta</i>
11.	<i>PamaharaMalahara</i>	<i>Parada, Gandhaka, Maricha, Tuttha, Sindoora, Jeerakadwaya</i>	<i>Pama, Kachapika.</i>
12.	<i>ByuchiharaMalahara</i>	<i>Parada, Gandhaka, manashila, kattha, pashanbheda, Mruddarashrng, goghrit</i>	<i>Pama, dadru, visphotaka</i>
13.	<i>DadrumanaMalahara</i>	<i>Crysophenic acid, carbolic acid, salicylic acid, yellow Vaseline</i>	<i>Dadru</i>
14.	<i>AadithakarambankalMalahara</i>	<i>Parada, Gandhaka, Mruddarashrng, tuttha, goghrit</i>	<i>Madhumehajanitvrana,</i>

15.	<i>BhagandaranashakaMalahara</i>	<i>Rasakarpoora, Sindoor, Mruddarashrnga, Kattha, Karpoora, Satyanashibeeja, Goghrt</i>	<i>Bhagandar, Vranaroga</i>
16.	<i>KanthamalakaMalahara</i>	<i>Parada, Gandhaka, Mruddarashrnga, Kattha, Tankana, Kunduru, Bhallataka, Maricha, Nimbapatra, Sikta, Sarshapataila.</i>	<i>Kanthamala, Galaganda, Apachi.</i>
17.	<i>UpadamsharipuMalahara</i>	<i>Rasakarpoora, Karpoora, Mruddarashrnga, Kattha, Tuttha, yello paraffin.</i>	<i>Phiranga, Upadamshajavrana,</i>
18.	<i>ArshoharaMalahara</i>	<i>Haratala, Kattha, Goghrt</i>	<i>Arshas.</i>
19.	<i>ShirashoolantakaMalahara</i>	<i>NilgiriTaila, Lobanpushpa, Paraffin hard, Paraffin soft.</i>	<i>Shirashoola, Vrishchikadamshaja Vrana</i>
20.	<i>AgnidagdhavranaharaMalahara</i>	<i>Rala, AlasiTaila, Sudhachoorna,</i>	<i>Agnidagdha Vrana.</i>
21.	<i>ManashiladiMalahara</i>	<i>Manashila, Ela, Manjishtha, Laksha, Haridra, Daruharidra, Goghrt, Madhu.</i>	<i>Vranaropana</i>
22.	<i>ParadaMalahara</i>	<i>Parada, Nimbatawak, bhrngaraja rasa, Sindoor, Paraffin white, TilaTaila</i>	<i>NadiVrana, DushtaVrana.</i>
23.	<i>ParadadiMalahara</i>	<i>Parada, Gandhaka, Mruddarashrnga, Tuttha. Goghrt</i>	<i>Dushtavrana, Dadru, Pama, Kandu.</i>
24.	<i>NimbadiMalahara</i>	<i>Nimbapatraswarasa, Goghrt, Rasakarpoora, Sikta,</i>	<i>Vranaropana</i>
25.	<i>Kala Malahara</i>	<i>TilaTaila, sindoor, karpoora, tuttha</i>	<i>DushtaVrana</i>
26.	<i>Birojakalalmalahara</i>	<i>Gandhaphiroja hingula (Hgs)</i>	<i>Nadivrana, Dushtavrana</i>
27.	<i>Birojakaharamalahara</i>	<i>Gandhaphiroja, papadkar, coal, jangar. (Jangar is an acidic liquid kept in copper vessel and mixed with saindhava lavana/milk and left for three days in a covered state, after 3 days it converts into like blue material).</i>	<i>Vranaropana, Visphota.</i>
28.	<i>Jeevanthyadimalahara</i>	<i>Siktha, jeevanti, manjista, Darvi, kampillaka, Tuttha.</i>	<i>Varnaprasadana.</i>
29.	<i>Sindhooradimalahara</i>	<i>Sikthatailanagasindhoora, rasa sindhur, rasakarpoora, mudharasinga.</i>	<i>Vrana, Vicharchika</i>

30.	<i>Yashadamruthamalahara</i>	<i>Sikthataila, yashada .</i>	<i>Vranashodhana, Vranaropana.</i>
31.	<i>Tutthakadyamalahara</i>	<i>ghrita ,tuttha,kathika, kapardabhasma, tankana</i>	<i>Nadivrana, Dushtavrana.</i>
32.	<i>Tutthamruthamalahara</i>	<i>sikthataila , tuttha</i>	<i>Vranaropana, dushtavrana</i>
33.	<i>Navajeevanamalahara</i>	<i>Siktha, Purifiedahipena, triphala,, churna, gandhaphiroja</i>	<i>Dagdhavrana.</i>
34.	<i>Hingulamruthamalahara</i>	<i>Sikthataila,hingulachurna, mudharashringa, tankana ,karpoora, rasakorpoora, spatika, sindhura.</i>	<i>Agnidagdhavrana.</i>
35.	<i>Hinguladhyamalahar</i>	<i>sikthataila, sindhoora, hingula.</i>	<i>Dushtavrana.</i>
36.	<i>Dwithiyasindhooradimalahara</i>	<i>sikthataila, rala and sindoora .</i>	<i>Pama, Vrana.</i>
37.	<i>Gairikadhyamalahara</i>	<i>sikthataila, gairika, sindhoora, haridrachurna.</i>	<i>Vranaroga</i>
38.	<i>Prathamasinghooradimalahara</i>	<i>sikthataila, tankana, sindhoora.</i>	<i>Vicharchika, Vipadika, Dushtavrana.</i>
39.	<i>Tankanamruthamalahara:</i>	<i>Sikthataila,tankana,sarjakshara, pushakaseesaand peepal tree kshara.</i>	<i>Vranaropana, Vranalekhana.</i>
40.	<i>Talakodayamalahara</i>	<i>sikthataila , haratala, kajjala, harithaki,kadhira,gairika , sindhoora</i>	<i>Vrana.</i>

The above mentioned *Malahara* are few among the many. Many such are explained in the classical text. In fact under the one heading of *Arshoharamalahara*, 4 types i.e. *pratama, dwitiya, tritiya and chaturtha* are present where all 4 vary in content and indication both. Similarly, *AgnidadghaMalahara*, has *prathama* and *dwithiya* types and so does *Shirashoolantakamalahara, Bhagandaranashakamalahara, kanthamalakamalahara, pamaharamalahara* and the list goes on.¹³

Modern Pharmaceutics

Ointments: 14,15,16,17,18

These are the soft semisolid preparations, used for external application to the skin or mucous membrane. Here, the medicaments will be dissolved or suspended or emulsified in the base. Ointments are used as emollients or protective agents to the skin or as vehicles for the topical application of medicinal substances.

The absorption of medicaments by the tissues from the ointments, applied to the skin depends upon different factors.

1. Properties of the drugs incorporated.
2. Properties of the base, used in the formulation.
3. Condition of the patient's skin.
4. Site of application.
5. Duration of application.

41.	<i>Gandhakadyamalahara</i>	<i>Sikta, gandhaka, sindhoora, tankana and karpura</i>	<i>Pama</i>
42.	<i>Sarjarasamalahara</i>	<i>Siktataila, Sarjarasa, tuttha, spatika.</i>	<i>Agnidagdhavrana, Daha, Dushtavrana, Gudapaka, Arshas</i>

Ointment bases:

An ointment base, acts as a carrier or vehicle for the medicament. An ideal ointment base should be inert, stable, smooth, compatible with the skin, non-irritating and should release the incorporated medicament readily.

Factors governing the selection of an ideal ointment base¹⁹

There is no ideal ointment base which fulfill all the requirements; because different types of bases are necessary for different purposes. A base suitable for normal skin may not be suitable for broken skin. Similarly a base suitable for dry skin may not be suitable for greasy skin. So, an ideal ointment base must be selected on the basis of following factors.

1. Dermatological factors.
2. Pharmaceuticals factors.

Dermatological factors:

a) Absorption and penetration

- 1) Only the ointment base penetrates deep into the tissues of the skin and mainly medicament absorbs into the blood stream.
- 2) Animal & vegetable fats readily penetrate the skin where as liquid paraffins do not.
- 3) Water soluble substances are more readily absorbed from water soluble bases.
- 4) Oil/Water emulsion bases release the medicament more readily than greasy bases or water/oil emulsion bases.

b) Effect on skin function :

Oil/water emulsion bases and other water miscible bases produces a cooling effect rather than heating effect and mix readily with skin secretions.

c) Miscibility with skin secretions and serum :

Oil/water emulsion bases are more readily miscible with serum than too from broken skin.

d) Compatibility with skin secretion :

The bases used should be compatible with skin secretions and should have a PH of the skin secretions is around 5.5. Generally neutral ointment bases are preferred.

e) Compatibility with skin secretion and emollient properties:

Ointment bases should be non-irritant to the skin by possessing emollient properties.

f) Ease of Application and Removal

The ointment bases used should be easily applicable as well as easily removable from the skin.

Pharmaceutical Factors²⁰**a) Stability**

Fats and oils of animal and vegetable sources are more liable to undergo oxidation, provided they are preserved properly. Soft paraffins, liquid paraffins are comparatively more stable.

b) Solvent properties

Suitable solvents should be selected for the proper dispersement of medicaments of an ointment.

c) Emulsifying properties

Hydrocarbon bases can absorb only a small amount of aqueous substances where as some animal fats like wool fat can take up about 50% of the water. Therefore animal fats are used in the preparation of creams.

d) Consistency

The ointments produced should be of suitable consistency. They should neither be too hard nor too soft. They should withstand the climatic conditions.

Method of preparation of an ointment:

Ointments are prepared by two methods.

- 1) Trituration method.
- 2) Fusion method.

Among these two; trituration method is most commonly and widely used. Here, the medicaments which are to be incorporated in the base are reduced into fine powder. This powder is triturated with small amount of the base on an ointment slab with help of a stainless steel spatula. To this, the additional quantities of the base are incorporated and triturated until the medicament is homogeneously mixed with the base. To remove the gritty particles, the ointment should be passed through an ointment mill.

Fusion method:

When an ointment base contains a number of solid ingredients such as white bases wax, acetyl alcohol, stearyl alcohol, stearic acid, hard paraffins etc as components of the base; it is necessary to melt them. The melting of the substances should be done in the decreasing order of their melting points i.e. the substances with highest melting point should be melted first, then the substances with next melting point and so on. This will avoid the overheating of substances having low melting ingredients and stirred thoroughly until the mass cools down and a homogenous product is formed.

If any other aqueous substance is to be incorporated, that must be heated to about the same temperature as the melted bases.

Other additives in ointments:

In addition to the medicinal agent and the base other additives such as preservatives, antioxidant, chelating agents and perfumes may be incorporated in the ointment.

- Preservatives such as methyl paraben or propyl paraben may be incorporated to prevent the bacterial growth.
- Anti oxidant are to be added to prevent oxidative decomposition of the ingredients.
- Chelating agents can be included to prevent the catalytic oxidative degradation by trace elements.
- Humectants such as glycerin or propylene glycol or sorbitol may be added to retard the loss of moisture from the preparation.
- Perfumes may also be added to the ointment to add up pleasant odour. A perfume, compatible with other components of the preparation should be added.

The present market of Pharmaceuticals is also inclusive of creams, gel based ointments, jellies, cerates, plasters and cataplas. Off late gel with micro-beads, emulsions etc. have entered the market.

CONCLUSION

Malaharakalpana is ointment preparation in *Ayurveda*. It holds a widespread reference area from *Brhatrayee* to *Yogaratanakar*, *Rasatantrasara* & *Siddaprayoga Sangraha to Rasatarangini*. The very first adaptation of the word “*Malahara*” from the Unani medicine “*Malaham*” has been taken by *Acharya Yogaratanakar*. The classical text *Rasa Tarangini* by *Vaidya Sadanand Sharma* explains the different methods of preparation of *Malahara*. *RasatantrasaarEvamSiddaprayogasangraha* mentions the list various types of *malahara* under one chapter with its preparation, utility methods and so on. Thereby, explaining the clinical implication of the same. The present texts as per the CCIM syllabus of *BhaishajyaKalpana* briefly describe the *Malaharakalpana* followed by the ointment preparations (under topical drugs in modern pharmaceuticals) updating the topic and extending their contribution in the research field from literary and fundamental view. Undoubtedly, this still remains the topic of research. Exploring such dosage form and many more which are quite untouched and useful in treatment shall be penned and compiled so that these could be brought to light and expand the horizon of the science.

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