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PHARMACEUTICAL EVALUATION OF HARIDRADI LEPA

Archana Kumbar[1]*, Ashok Kumar B. N.[2] and Ravindra Angadi[3]

[1]3rd Year PG Scholar, [2]Associate Professor, [3]Professor and HOD

Dept. of Rasashastra and Bhaishajya Kalpana, Shri Dharmasthala Manjunatheshwara College of Ayurveda Kuthpady, Udupi, Karnataka.

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***Corresponding Author**
Dr. Archana Kumbar
3rd Year PG Scholar, Dept. of Rasashastra and Bhaishajya Kalpana, Shri Dharmasthala Manjunatheshwara College of Ayurveda Kuthpady, Udupi, Karnataka.

ABSTRACT

Ayurveda is the oldest and holistic science of approach which is mainly targeted towards maintaining the health of a healthy person as well as treating the diseases. It explains various dosage forms to ease the selection of medicine to treat the patients. The selection of dose will be based on *yukti* (ones intellect) of a physician considering *roga* (disease) and *rogi* (patient) with other several factors too. *Haridradi Lepa* is a topical type of medicament which is in the powder form. It is explained in the context of *arbuda chikitsa* by *Acharya Bhavamishra* in *Bhavapraksha Nighantu*. It is prepared by taking equal quantity of *haridra churna, shuddha shankha churna* and *mulaka kshara* and triturated until it becomes a homogenous mixture. This powder is applied along with *jala* (water) or *Madhu* (honey) externally. In the present article an attempt has been made to standardize the herbo-mineral formulation, *Haridradi Lepa*.

KEYWORDS: *Arbuda, kaphaja arbuda, kshara, churna, Bhavaprakasha Nighantu.*

INTRODUCTION

Bheshaja is one among the *chikitsa chatushpada* (4 important factors responsible to set up a clinic or hospital to treat patients).[1] It plays a vital role in treating the diseases. Hence its genuine authentication, preparation and standardization is very necessary to make it fit for a patient. There are various dosage forms we come across while dealing with the diseases. *Lepa* is a solid type of dosage form explained in classical books of *Ayurveda*. It is included under *bahirparimarjana chikitsa*, i.e. topical application. The absorption of drug is through the hair roots, sweat glands and blood vessels of skin and mucous membrane.[2] To explain its action

Acharya Sushruta gives a simile that; how one can stop fire immediately by pouring water over a burning house, in the same way the *lepa* will have rapid action in subsiding the *doshas*.[3]

Freshly collected wet drugs are ground to paste by adding little quantity of water and applied as *lepa* externally. If the drugs are in dry form then they are finely powdered and stored in an airtight container. This powder is mixed along with *madhu* (honey), *jala* (water), *taila* (oil), etc. as a base and is applied externally as *lepa*.[4] *Lepa* is also known as *lipta*, *lepana* and *alepa*.[5] *Acharya Sushruta* explains the general actions of *lepa* such as; *twak prasadana* (nourishes skin), *mamsa-rakta prasadana* (nourishes muscles and blood circulation), *doshahara* (brings down the aggravated *doshas*), *vrana shodhaka* (wound cleaning), *vrana ropaka* (wound healing), *daha shamaka* (reduces burning sensation), *kanduhara* (reduces itching), *sandhanakara* (repairs damaged tissue), *shothahara* (reduces swelling), *shulahara* (pain reducing) and *sthambaka* (checks bleeding or any others discharges).[6]

There are different types of l*epa* based on its *guna karma* (properties and action). *Acharya Sushruta* explained 3 types of *lepa* i.e. *Pralepa* (It have cold potency, applied very thin and if it is removed before it gets dried then it is called as *avishoshi*, if removed after it gets dried then called as *Vishoshi*), *Pradeha* (It is always *avishoshi* type of *lepa*, either hot or cold in nature. The thickness of *lepa* which resembles same as that of buffalo's skin is referred to be *bahala*. *Abahu* type of *lepa* refers to the application of one bolus of paste at a time), *Alepa* (This type of application will have medium thickness).[7] *Acharya Sharangadhara* explained 3 types; *Doshaghna* (reduces aggravated doshas, i.e. inflammation), *Vishagna* (reduces the spread of toxic effects, i.e. any insect or snake bite, etc.), *Varnya* (for cosmetic purpose).[5]

Acharya Vagbhata also explains various types of *lepa* in different contexts like *snaihika, pachana, pidana, shodhana, shoshana* etc.

Haridradi Lepa is mentioned in *Bhavaprakasha Nighantu* in the context of *kaphaja arbuda* treatment.[8] It is a solid type of dosage form which is in the form of powder. It contains *haridra churna, shankha churna* and *mulaka kshara* in equal quantity as ingredients. These fine powders are triturated to make a homogenous mixture and stored in airtight container. This *lepa* is advised to apply externally along with *jala* (water) or *madhu* (honey) as base. The *ruksha* (dry), *teeksnha* (sharp penetrating properties) and *laghu* (lightness) *guna*, *usna*

virya (hot potency), *katu vipaka* (the final outcome of transformation after the digestion of food), *lekhana* (scraping), *kshareeya* (alkaline) properties will help in subsiding the *arbuda*.

AIMS AND OBJECTIVES

1. Collection and authentication of raw drugs
2. Preparation of *Haridradi Lepa*

MATERIALS AND METHODS

The methodology mainly includes two steps;

A. Collection and Authentication of raw drugs: All the ingredients are collected from the Dept. of Rasashastra and Bhaishajya Kalpana, SDMCA Udupi, Karnataka. They were authenticated by the relevant subject experts.

B. Method of preparation of *haridradi lepa*: It includes various steps as follows,

1. Preparation of *haridra churna*

Churna kalpana is a solid type of dosage form which is in the form of powder. The completely dried drugs are powdered to fine consistency and sieved through the cloth. *Rajaha, kshodha* are its synonyms.[9]

Materials required:- *Khalva yantra* (mortar and pestle), *tula yantra* (weighing machine), sieve, mixer grinder.

Method of preparation:- *Haridra churna* is prepared according to the general method of preparation of *churna. Haridra* is completely dried and pounded with hand and then powdered with grinder. Then it is sieved and the powder is stored in an airtight container.

2. Preparation of *shankha churna*

It includes 2 steps 1) Preparation of *kanji* 2) *Shankha shodana* in *kanji* 3) Preparation of *shankha churna.*

2.1. Preparation of *kanji*[10]

Kanji is an acidic preparation which is prepared by keeping the *manda* (gruel prepared of rice and water along with radish) for fermentation process for a certain number of days until *amlatva* (sour taste) is appreciated.

Kulmasha, *dhanya* or *manda* is kept along with other drugs like *kulatha*, *mulaka*, etc. for fermentation to prepare *kanjika*.[11]

Materials required:- Gas stove, *tula yantra*, vessel, spoon, knife, *mritpatra* (mudpot), *vastra* (cloth)

Method of preparation:- Required quantity of *shali* (rice) is washed with water and *mulaka* (radish) is made into small pieces and kept ready. Now both rice and radish are taken in a wide mouthed steel vessel. Water is added and kept on *madhyamagni* (medium fire) for boiling. The fire is supplied till rice and radish gets cooked properly. Meanwhile the mudpot is sterilized by the method of *dhupana* (fumigation with the medicated smoke) with *ushira (Vetiveria zizanoides Linn.), sarshapa (Brassica campestris Linn.), haridra (Curcuma longa Linn.), vidanga (Embelia ribes Burn.), karpura (Cinnamomum camphora Nees.)*. All these dravyas are taken in mud plate and heated on fire until smoke is appeared. Then the mud pot is held upside down until it is filled with the fumigated smoke completely and the mouth is closed with a lid to stay smoke inside for a while. The cooked rice mixed radish gruel is left for self-cooling. Thereafter it is carefully shifted to fumigated mudpot. Then the mouth of the pot is tied with a cloth (*sandhibandhana*) and kept in a dark room. This combination is filtered through cloth after 3 days and kept for further fermentation in mud pot till appearance of *siddhi laxanas* (characteristic features) like effervescence, sourness, typical smell of *kanji*, etc. Later it is used for pharmaceutical purposes.

2.2 *Shankha shodana*[12]

The purification procedures such as washing, trituration, heating and dipping through which the impurities are removed is called as *shodhana*.[13] These procedures will make the raw drugs fit for therapeutic utility.

Materials required:- Weighing machine, mortar and pestle, cloth, *dolayantra*, mudpot, gas stove.

Method of preparation:- *Shodhana of shankha* is done by *swedana samskara* (boiling in a specific liquid media like decoction, water, cow's urine, juice extracted from fresh plants etc.) in *dolayantra* (it includes a mudpot with a specific liquid in which the *pottali* is immersed by tying to a stick or rod) for 1*yama* (3 hours). *Ashudha shankha* is pounded manually in mortar and pestle till the whole *shankha* gets break down. Later these pieces are

tied in a cloth and *pottali* (a bundle of cloth in which *shankha* is tied) is prepared. Nearly 3 litres of *kanji* is added to mudpot. The *pottali* is immersed in the *kanji* so that its bottom does not touch the pot, i.e. the *pottali* should be floating in the *kanji*. *Swedana* is done for 3 hours. It took nearly 10-15min to onset for boiling. On and often the *kanji* is poured into pot until it complete 3 hours. Then the hot *pottali* is removed out of pot and *shankha* is separated and placed in a vessel. Then it is washed with hot water for about 2-3 times until the clear, bright, white color *shankha* is obtained. It is stored in airtight container as *shudha shankha* which can be used for further procedures.

2.3) Preparation of *shankha churna*

Materials required:-Mortar and pestle, weighing machine, pulverizer, sieve.

Method of preparation:- *Shankha churna* is prepared according to the general method of preparation of *churna*. The *shuddha shankha* is pounded in *khalva* yantra (mortar and pestle) to prepare *churna* (powder). Since it was very difficult to powder manually, the *churna* is prepared in SDM Pharmacy. The bright white colored powder is stored in airtight container as *shankha churna*.

3. Preparation of *mulaka kshara*[14]

Kshara is a caustic, alkaline substance obtained from the ashes of medicinal plants. As it is highly corrosive in nature, it has burning and destructive action towards the tissue.[15,16]

Materials required:- Weighing machine, cloth, *loha patra* (iron vessel), *loha darvi* (iron spoon), gas stove, knife, plastic sheets to dry, plastic bucket.

Method of preparation:- *Mulaka* is collected from local market and authenticated in SDM Pharmacy. Total 102kg of *mulaka* was purchased. Out of which 66kg of raw *mulaka* is obtained after separating the leaves. It is chopped to small pieces using knife and dried under sun in an open place. It took nearly 6 days to dry completely.

The dried *mulaka* is taken in a clean iron vessel and burnt in an open space. The burning of dried *mulaka* was very similar to that of popcorn which expands and puffs up when heated. It was spreading the fire within it. It took nearly 2 hours to burn completely. The grey colored ash was covered within dark black color. The burnt *mulaka* is left untouched for self-cooling. Later it is collected and stored in an airtight plastic bottle. Salty taste can be appreciated well during transforming the ash into the bottle. It is then mixed with 6 (volume to volume) parts of water and kept undisturbed for overnight in a plastic bucket. Next day it was filtered for 21

times using cora cloth. 1st filter is done using single layer, 2nd filter with double layer, 3rd filter with three layered cora cloth. From 4th to till 21st filter four layered cora cloth is used. *Gomutra varna* (color similar to cow's urine) can be appreciated after the 21st filtration. Then this filtrate is shifted to a clean iron vessel and kept for boiling over medium fire. After 5 min white colored foam was appeared and once when it start boiling it was disappeared. It took nearly 10min to start boiling vigorously. Stirring was done on and often continuously. Later continuous stirring is necessary. After 3.45 hours of vigorous boiling we got dull brick colored *kshara*. It is stored in airtight glass container as *mulaka kshara*.

4. Preparation of *haridradi lepa*

Materials required: Weighing machine, mortar and pestle.

Method of preparation:- *Lepa* is prepared according to the method explained in *Bhavaprakasha Nighantu*, i.e. equal quantity of *haridra churna, shuddha shankha churna* and *mulaka kshara* are taken in a clean mortar and pestle and *mardana* (trituration) is done till homogenous mixture is formed. It took around 20 min to be a complete dull red colored homogenous mixture. Then it is stored in an airtight glass container.

RESULTS AND DISCUSSION

Haridradi Lepa, the formulation is comprised of fine powders of *haridra*, *shankha* and *mulaka kshara*. An attempt is made to standardize the medicament. All the procedures were handy.

Haridra churna was prepared using mixer grinder as the consistency required was very fine. During the preparation of *kanji*, one can appreciate the smell of *mulaka* throughout the procedure. Initially the pieces of *mulaka* were floating on water, later it was a homogenous mixture along with the cooked rice. The odor of *kanji* can be sensed while boiling the *shankha* in it. The *shankha* was bright white color after the *shodhana*. Preparation of *shankha churna* was difficult as it was stony hard, hence pulverizer is used to prepare powder.

Mulaka kshara was a time consuming procedure where the drying of radish took nearly 1 week. During the burning and collection of ash of *mulaka*, one can appreciate the salty taste and odor.

Haridra has *katu-tikta rasa, ruksha guna, usna virya, katu vipaka. Shankha* is having *katu rasa* and *katu vipaka* along with *laghu* and *kshariya guna*. *Mulaka* is having *katu-tikta rasa,*

laghu-tikshna guna and *katu vipaka*. Hence the properties of *lepa*, like *ruksha-tiksna-laghu guna, lekana* and *ksharana karma* will help in subsiding the pain and inflammation. It also decreases the swelling by scraping and corrosive action of *Haridradi Lepa.* Since the *lepa* contains *kshara* as one of the ingredients which is corrosive and hygroscopic in nature, it is preserved in airtight glass container.

Table 1: Ingredients of the *haridradi lepa.*

SI. no.	Ingredients	Quantity
1	*Haridra Churna*	1 part
2	*Shankha Churna*	1 part
3	*Mulaka Kshara*	1 part

Table 2: Ingredients for *kanji.*

Drug	Ratio	Quantity
Shali (rice)	1 part	1 kg (1.220 litre)
Mulaka (Radish)	½ part	500 gm
Jala (water)	14 parts	17.080 litre
Total quantity of *kanji* obtained is 5 litres		

Table 3: % Loss of *shankha* during *shankha shodhana.*

Ashudha Shankha	350 gm
Shudha Shankha	345 gm
% of Loss	1.43%

Table 4: % Loss of *shankha* in the process of *shankha churna.*

Shudha Shankha	345 gm
Shankha Churna	283 gm
% of Loss	17.97 %

Table 5: *Mulaka kshara.*

Weight of total *mulaka*	66 kg
Weight of dried *mulaka*	3.835 kg
Weight of Ash	615 gm.
Ratio (ash : water)	1: 6 (volume : volume)
Ash	615 gm./ 2.960 litre (1 part)
Water	17.760 litre (6 parts)
Amount of *Kshara jala* after 21 times filtration	15 litre
Amount of *Kshara*	132 gm.

Table 6: Organoleptic characters of *haridradi lepa.*

Color	Dull red
Odor	Characteristic smell
Taste	Salty
Texture	Fine powder

Fig. 1: Well grown and completely dried *haridra.*

Fig. 2: Pounding *haridra* with hand in mortar and pestle.

Fig. 3: Coarsely ponded *haridra*.

Fig. 4: Fine powder of *haridra.*

Fig. I: Step by step illustration of procedure of *haridra churna.*

Fig. 1: *Shali*/ rice.

Fig. 2: Radish cut into small pieces.

Fig. 3: Rice and radish kept for boiling.

Fig. 4: *Manda* consistency after completely cooked.

Fig. 5: Fumigating the mudpot.

Fig. 6: Filling the pot with *manda.*

Fig. 7: Pot filled with *manda.*

Fig. 8: Mouth of the pot is tied with a cloth and mud plate is kept over it.

Fig. 9: Final product of *kanji.*

Fig. II: Step by step illustration of preparation of *kanji.*

Fig. 1: Impure *shankha.*

Fig. 2: Coarsely pounded *shankha.*

Fig. 3: Tying *pottali.*

Fig. 4: *Pottali* of *shankha.*

Fig. 5: *Swedana* of *shankha* in *kanji* for 3 hours.

Fig. 6: Bright white coloured *shuddha* *shankha* after *shodhana.*

Fig. 7: *shankha churna.*

Fig. III: Procedure of *shankha Shodhana* and *Churna.*

Fig. 1: Fresh grown *mulaka.*

Fig. 2: *Mulaka* kept for drying.

Fig. 3: *Mulaka* after complete drying.

Fig. 4: Burning of *mulaka* in *lohapatra.*

Fig. 5: Ash of burnt *mulaka.*

Fig. 6: Water is added and kept overnight undisturbed.

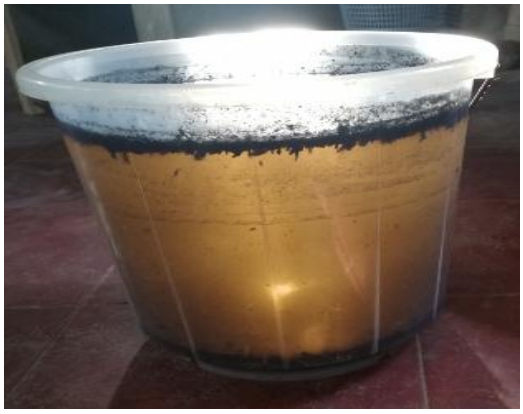

Fig. 7: Next day Fig.

8: Filtering the *ksahara jala.*

Fig. 9: After 1st filtration.

Fig. 10: After 10th filtration.

Fig. 11: After 21st filtration, resembles *gomutra varna.*

Fig. 12: Boiling *kshara jala* in *lohapatra*

Fig. 13: Vigorously boiling

Fig. 14: Gradual reduction of water content

Fig. 15: Complete reduction of water

Fig. 16: Powder form of *kshara.*

Fig. 17: *Kshara* stored in airtight glass. bottle

Fig. IV: Step by step illustration of *mulaka kshara.*

Fig. 1: Ingredients of *Haridradi lepa.*

Fig. 2: Final product.

Fig. V: *Haridradi lepa.*

CONCLUSION

In the present study *Haridradi Lepa* is prepared. It is bright red in color and had a characteristic smell of *haridra*. The *lepa* is appeared to be fine powder form. It is having *ruksha-tikshna guna*, *usna virya*, *katu vipaka*, *lekhana* and *kshariya karma* will help in scraping and charring of *arbuda.*

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