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Pharmaceutical Study of Pippalyadya Lauha

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Abstract: According to Ayurveda, there is no substance in the world which cannot be used as medicine. Most of the drugs, as such cannot be used for the therapeutic purpose in the biological systems. Hence, to develop an elegant, compatible & convenient dosage forms, which can be applied easily, were the need of time. These specific modifications are known as 'Samskara' in Ayurveda, and they can be grouped under the headings of 'pharmaceutical processes' in contemporary languages. In present era of globalization, it is the need of time to explore the scientific basis for medicaments of Ayurveda. *Pippalyadya Lauha* is one of the important Loha Kalapana for Swasa Chikitsa. The ingredients of *Pippalyadya Lauha* are *Pippali, Amalaki, Draksha, Kola, Madhu, Sharkara, Vidanga, Pushkaramoola* and *Lauha Bhasma*. *Pippali* cure *shwasa, kasa,* and *kaphavata shamka*.

Keywords: Pippalyadya Lauha, Loha Kalapana, Shodhana, Marana, Lauha Bhasma

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INTRODUCTION:

Ayurveda is a well-documented Traditional system of Indian Medicine (TIM). Rasa Shastra, an offshoot of Ayurveda popular from medieval period, mostly deals with therapeutic utilization of metals and minerals. Iron is a noncontroversial metal for therapeutic use since centuries in east as well as west. Iron containing drugs are widely used in modern medicine as hematinic. These drugs are known to induce some adverse drug reactions gastro intestinal symptoms (nausea, vomiting, epigastric pain, eructation, pyrosis, meteorism, borborygami, colic pain, flatulence, constipation, black feces, and diarrhea).

Lauha Kalpas most likely used and can be a better alternative from Ayurveda. Lauha Kalpas (LK) is formulations which possess Lauha Bhasma (calyx of iron) as the major ingredient along with the other herbal ingredients.

Pippalyadya Lauh is one of the important Loha Kalapana. The ingredients of *Pippalyadya Lauh* are *Pippali, Amalaki, Draksha, Kola, Madhu, Sharkara, Vidanga, Pushkaramoola and Lauha Bhasma. Pippali* cure *shawasa, kasa, and kaphavatashamka. Amalaki* is an excellent fruit. It alleviates *vayu* because of sour taste, alleviates *kapha* because of its astringent taste. *Pippalyadi loha* used in Asthama treatment. *Pippalyadi Loha* is cost effective, and easy to prepare, here an attempt is made for Pharmaceutical Study of *Pippalyadya Lauha*.

Materials and Methods**Procurement of Raw materials**

The main raw materials required for are *GrahyaLoha, Pushkarmoola, Pippali, Madhu, Draksha, Vidanga, Kola* etc and these are easily available. *Grahya Loha Loha* was collected from *Patiala.(PUNJAB)*, after observing the *grahyalakshana. Herbal Drugs. Pushkarmoola, Pippali, Madhu, Draksha, Vidanga, Kola* were collected from local market and get authenticated from experts.

Pharmaceutical Processing:

1. Preparation of Takra
2. Preparation of Kanji Arnal
3. Preparation of Kulottha Kwatha
4. Preparation of Triphala Kwatha
5. Samanya Shodhana of Loha
6. Vishesha Shodhana of Loha
7. Bhanu Paka of Loha
8. Putapaka of Loha / Marana of Loha
9. Preparation of Pippaliyadi Loha

1. PREPARATION OF TAKRA Aim:¹ Preparation of Takra

Principle: Manthana (churning).

Equipment's: Two big stainless steel vessels, churner, mixer, measuring mug, clothes, weighing machine.

Ingredients: Curd : 30 Kg Tap Water:15 lts.

Duration: 2 hr. x 3 times = 6 hr.

Procedure: Curd was procured from the local

market. Curd and water were mixed properly and churned firstly by churner, when the butter part started to separate then it was churned by mixer until butter part was separated completely. Then Takra was collected by straining and used for Shodhana.

Precaution: Curd was churned properly. It was carefully strained. Ratio of curd and water (2:1) was maintained. Curd prepared from cow's milk was preferred.

TABLE NO.1- PROPERTIES OF TAKRA

S No.	Colour	Taste	pH	Total Solid Content (% w/w)
1	White	Sour	4	4.46

2. PREPARATION OF KANJIARNAL²

Principle: Sandhana (fermentation)

Equipment's: Gas stove, lighter, stainless steel vessel (2), spatula, mortar and pestle, measuring mug, clothes, porcelain jar (10 gallon), mud smeared cloth.

Ingredients:

- Rice : 1.5 Kg
- Water: 6 L (to cook rice)
- Masha : 1.5 Kg
- Water: 6 L (to cook masha)
- Rajika : 100 g
- Haridra : 100g
- Salt :100 g
- Water: 24 L (to prepare Kanji)

Duration : 25 days.

Procedure : Rice and Masha were washed

properly by tap water. Then both were cooked properly by adding four times water. After proper cooking both were mixed properly by continuous and vigorous stirring. Rajika, Haridra and salt were made into a mass and mixed with cooked rice and Masha by stirring. Water was added to it and was subjected in a porcelain jar often gallon capacity (48 L). 2/3rd of the jar got filled and 1/3rd space were remained empty. Mouth of the jar was properly closed by the lid and wrapped by mud smeared cloth to resist entry of air. It was kept as it is for 25 days, on 26nd day completion tests were performed after opening the lid. Kanji was collected by straining and used for Shodhana.

Precaution : Rice and Masha were cooked properly. All the materials were mixed carefully. Before filling of the jar, it was washed by hot water. 1/3rd space of jar was kept empty. Completion tests were performed carefully. It was not disturbed in process by shaking or opening the lid of jar.

TABLE NO.2- PROPERTIES OF KANJI/ARNAL

SI No.	Colour	Taste	pH	Total Solid Content (% w/w)
1	Yellowish	Sour	3	4.35

3. PREPARATION OF KULOTTHAKWATHA

Principle: Kwathana (boiling)

Equipments: Gas stove, lighter, stainless steel vessel (2), measuring mug, clothes, spatula,

weighing machine.

Ingredients :

KulotthaSeed : 3 Kg Water : 48 L

Duration : 2hrs 7times= 14hrs

Procedure :Kulottha seeds were washed properly by tap water. Water was taken in a big stainless steel vessel and Kulottha seeds were added to it. It was boiled till the liquid part was reduced to 1/8th. Then it was strained by clothes and used for Shodhana. Decoction was prepared for 7 times.

Precaution :Kulottha seeds were washed properly Continuous moderate boiling was done till it reached the required quantity.

TABLE NO.3 - PROPERTIES OF KULTHKWATH

S No.	Colour	Taste	pH	Total Content (w/w)	Solid Content (%)
1	Brownish	Characteristic	5.5	6.34	

4. PREPARATION OF TRIPHALAKWATHA³

Principle: Kwathana (boiling)

Equipments : Gas stove, lighter, stainless steel vessel (2), measuring mug, clothes, spatula, weighing machine.

Ingredients: Triphala (coarse powder) : 3 Kg Water: 24 L

Duration: 2 hr x 7 times = 14 hr.

Procedure:

Water was taken in a big stainless steel vessel and coarse powder of triphala was poured into the vessel. Both were mixed and boiled till the

liquid part was reduced to 1/4th that is 6Lts, it was strained by clothes and used for Shodhana.

Decoction was prepared for 7 times.

Precaution: Triphala was made into coarse powder.

Reduction of the liquid part was observed properly. It was strained, whenever it remained hot.

Table 4- PROPERTIES OF TRIPHLAKWATH

S No.	Colour	Taste	pH	Total Content (% w/w)	Solid Content (%)
1	Brownish	Characteristic	6	5.65	

5. SAMANYASHODHANA OF LOHA⁴

Principle: Nirvapa (heating and quenching)

Media :

1. TilaTaila (sesame oil)
2. Takra (butter milk)
3. Gomutra (cow s urine)
4. Arnal / Kanji (sour gruel)
5. KulotthaKwath (decoction of Dolichos biflorus)

Duration: Working hours : 68 hr.

Equipments: Hearth, coal, match box, iron ladle, iron rod, stainless steel vessels (2), spatula, measuring mug, weighing machine, pyrometer, thermometer, blower.

Ingredients: Raw Loha: 3000 gms.

Media: Gravimetrically same amount to the Loha in each time.

Procedure : Raw Loha was taken on ladle and was heated on hearth upto red hot and

quenched in specific liquid media, which was taken in a stainless steel vessel. After cooling down Loha was taken out from the vessel, again taken on ladle and heated and quenched. These processes, were repeated 7 times in each media. Every time fresh, gravimetrically same amount of media was taken. Temperature of hearth, ladle and Loha during red hot state was noted. Weight of Loha and weight and volume of media was noted in each time.

Time taken for each process was also being noted, And all the data was recorded.

6. VISHESHASHODHANA OF LOHA⁵

Media: Triphala Kwatha

Duration: Working hours : 10.5 hr.

Ingredients: Samanya Shodhita Loha

Type of procedure: Nirvapa (heating and quenching). **Equipment's:** Same as Samanya Shodhana **Procedure:** Same as Samanya Shodhana **Precautions:** Same as Samanya Shodhana

7. BHANUPAKA⁶

Media: Triphala Kwatha

Duration: Working hours : 3 days X 7

Ingredients: Samanya Shodhita Loha Triphala Kwath : Q.S.

Type of procedure: Swinam

Equipment's: Iron ladle, iron rod, stainless steel vessels, measuring mug, weighing machine.

Procedure: Water was taken in a big stainless steel vessel and coarse powder of triphala was

poured into the vessel. Both were mixed and boiled till the liquid part was reduced to ¼ that is 4 L, it was strained by clothes and used for Bhanupaka procedure. After dipping all Shudhlohachuran the earthen pot kept in Sunlight for next two weeks. Repeat the process seven times.

8. LOHA MARANA⁷

Media for Bhavana : Oudan and Triphala kwath

Duration : Working hours : 1157 hr.

Equipments: Iron mortar and pestle, Edge runner, traditional Gajaputa, cow dug cakes. Weighing machine, measuring mug, knife, spoon, earthen saucers (2), mud smeared cloth, stainless steel vessel, scale, pyrometer.

Ingredients: Shudh Loha

Procedure: Bhanupakita Loha Churana was levigated continuously for 6 hr by adding *Oudan and Triphala kwath*. Then pellets were prepared and kept on an earthen saucer and was allowed to dry. After proper drying the saucer was covered by another earthen saucer and junction was sealed by double folded mud smeared cloth and again allowed for complete drying. Then this was subjected for Putapaka After Putapaka the material was collected and ground. These processes were repeated for 10 times.

Chakrikakaran (pelletization) : Levigated doughy mass was taken in saucer with the help of spoon and cut into quadrangular shape by knife. (Measurement of one Chakrika : Length 2 cm, width : 2 cm, thickness 1 cm.).

Required temperature and fuel: Average maximum temperature 980°C was given for a duration of 48 minutes (at highest temperature) in Gujaputa. The weight of cow dungs used in 34 kg. The temperature required for cooling in 10 hrs.

Precautions:

- Continuous 6 hr levigation was given.
- Pellets and cloth-smear saucers were dried properly.
- Levigated mass was collected carefully to check the loss
- In traditional Gajaputa, firstly 2/3rd of Puta was filled by cow drug cakes then saucer was kept and finally 1/3rd part was filled by cakes.
- It was ignited from the bottom.
- Material was collected carefully after incineration.
- Weight, temperature were recorded carefully.

9. a) PREPARATION OF PIPPALAYADI LOHA -1⁸

Equipment's: Khalva Yantra, Two big stainless steel vessels, churner, mixer, measuring mug, clothes, weighing machine.

Ingredients: *Pippali* churana-160g, *Amalaki* churana -160g, *Draksha*-160g, *Kola*-160g, *Madhu*-160g, *Sharkara* churana -160g, *Vidanga* churana -

160g, *Pushkaramoola* churana - 160g, *LohBhasma*-1280g.

Procedure: All the above mentioned drugs churna was taken in Khalva Yantra mix it together and trituration was done upto 6hrs.

Observation: Fine powder was obtained after processing of Pippalayadi Loha No.I. After preparation of Pippalayadi Loha No.I the Brownish color appeared. **Result:**

Total duration required for preparation of : Pippalayadi Loha No.I=2 hr. x 3 times = 6 hr. Final weight obtained of : Pippalayadi Loha No.I. - 2560 g

b) PREPARATION OF PIPPALAYADI LOHA NO.2

Step I- Kwath was prepared from herbal drugs of *Pippalayadi Loha*. **Principle:** *Kwathana* (boiling)

Equipments : Gas stove, lighter, stainless steel vessel (2), measuring mug, clothes, spatula, weighing machine.

Ingredients: *Pippali* (coarse powder) 80g, *Amalaki*(coarse powder) -80g, *Draksha*(coarse powder) -80g, *Kola*(coarse powder) -80g, *Vidanga*(coarse powder) -80g, *Pushkaramoola*(coarse powder) -80g, Water- 7680ml.

Procedure: Water was taken in a big stainless steel vessel and coarse powder of all the above herbal ingredients were poured into the vessel. All were mixed and boiled till the liquid part was reduced to 1/8th that is 960ml, it was strained by clothes and used for bhavana.

Step II- Bhavana was given to prepared already

Pipplayadi Loha. And process was repeated three time.

Principle: Bhavana

Equipment's: Khalva Yantra, Two big stainless steel vessels, churner, mixer, measuring mug, clothes, weighing machin.

Ingredients:

Pippalayadi Loha No.I.-1280g Kawath of herbal drug.(Qty sufficient) Procedure:

Already prepared *PipplayadiLohaNo.I* taken in khalva yantra and bhavana was given by kawath of herbal drug(Qty sufficient) which was prepared in first step of procedure. Total three times bhavana given to *Pippalayadi Loha No.I*. then second formulation was prepared *Pippalayadi Loha No.II*

Observation: Fine powder was obtained after processing of *Pippalayadi Loha No.II*. After preparation of *Pippalayadi Loha No.II* the Brownish color appeared.

Result :Total duration required for preparation of : *Pippalayadi Loha No.II*= 6 hr. x 3 times = 18 hr. Final weight obtained of : *Pippalayadi Loha No.II*. -1350 g

c) PREPARATION OF PIPPALAYADI LOHA NO.III

Step I- Kwath was prepared from herbal drugs of Pippalayadi Loha. **Principle:** Kwathana (boiling)⁹

Equipments: Gas stove, lighter, stainless steel vessel (2), measuring mug, clothes, spatula, weighing machine.

Ingredients:*Pippali* (coarse powder) 160g, *Amalaki*(coarse powder) -160g, *Draksha*(coarse powder)-160g, *Kola*(coarse powder)160g, *Vidanga*

(coarse powder) 160g, *Pushkaramoola* (coarse powder) -160g,Water-15.360Lts.

Procedure: Water was taken in a big stainless steel vessel and coarse powder of all the above herbal ingredients were poured into the vessel. All were mixed and boiled till the liquid part was reduced to 1/8th that is 1.92Lts. it was strained by clothes. and used for Bhavana.

Step II- Bhavana was given to already prepared *LohBhasma*. And process was repeated three time.

Principle: *Bhavana*

Equipment's: Khalva Yantra, Two big stainless steel vessels, churner, mixer, measuring mug, clothes, weighing machin.

Ingredients: *LohBhasma*.-1280g, Kawath of herbal drug.(Qty sufficient)

Procedure: Already prepared *LohBhasma* taken in khalva yantra and bhavana was given by kawath of herbal drug(Qty sufficient) which was prepared in first step of procedure. Total three times bhavana given to *LohBhasma*.Then third formulation was prepared *Pippalayadi Loha No.III* **Observation:**

Fine powder was obtained after processing of *Pippalayadi Loha No.III*. After preparation of *Pippalayadi Loha No.III* the Brownish color appeared. **Result :**

Total duration required for preparation of : *Pippalayadi Loha No.III*= 6 hr. x 3 times = 18 hr. Final weight obtained of : *Pippalayadi Loha No.III*. -1330 g

Precaution:

- Fine powder churana was taken.
- Loha bhasma should pass all bhasmapareeksha.
- Constant pressure was maintained in the whole procedure.

Discussion

For the preparation of Pippalyadi Loha the steps followed were Loha shodhana. Samanya shodhana of Loha was carried out as per classical reference followed by Taila, Takra, Gomotra, Kultha Kwath and Kanji. After shodhana of Loha Next Loha was subjected for Bhanupaka and Sthalipaka. After sthali paka the loha converted in to churana form. Note this churana was triturated with Triphala Kwath and chakrika were prepared and subjected for Gajaputa. After 10 gajaputa Bhasma passes its pareeksha. Then dry herbs powder were prepared and mixed in specified proportion. All are taken in given quantity and mardana done with irrespective of reference. Pippalyadi Loha was prepared in three different forms i.e. Pippalyadi Loha I, II, III. After 10th puta, Cracks were seen on both the saucers. Pellets became very soft after incineration. Colour of Loha Bhasma was purple (Pakwa Jambu Phala Varna).

Conclusion

Pippalayadi Loha is a herbo -mineral preparation needs raw materials like – Loha, Pushkarmoola, Pippali, Madhu, Draksha, Vidanga, Kola which are easily available. In the first step Grahya Loha was

taken and Loha bhasma prepared with the classical method followed by Bhanupaka, Sthalipaka and Puta paka. The pharmaceutical processing of Pippalayadi Loha was continued with the powdered drugs mentioned for preparation with three different methods. As pippalyadi loha preparation is bit tedious i.e in the loha bhasma preparation but economic.

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Pippalyadi Lauha Preparation



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