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Analytical Study of *Timirahara Lauha* Vati: A Modified Ayurvedic Herbomineral Compound

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ABSTRACT

Given the importance of vision to human social and intellectual development, eyes have a distinctive place among the sense organs.Hence,The most priceless gift from God to mankind are our eyes.*Timirahara lauha* is a herbomineral formulation mentioned in *Rasendra Sara Sangrah, Netraroga Chikitsa* in the management of *Timira.* The contents of this *vati* are *Aamlaki, Vibhitaki. Haritaki, Padma, Yashtimadhu, Lauha bhasma.* It contains drugs to improve eye sight and haemoglobin levels by its properties namely *chakshusya* (good for eye sight) and *raktavardhaka* (haematinic). The tests that are suggested would act as diagnostic parameters for this herbo-mineral combination. The suggested method of making tablets from herbal and mineral medications can help with uniform dosage forms, higher palatability, and simple acceptance in children. Pharmaceutical evaluation of *Timirahara lauha vati* preparation was performed in accordance with PLIM's API and drug testing protocol.

Materials and Methods: The prepared drug was evaluated for Organoleptic, physicochemical, and microbiological studies. **Result and Analysis**: Due to the low level of heavy metals and lack of any pathogenic bacteria, the formulation is safe for usage. **Conclusion**: *Timirahara lauha* was prepared by following the method described in *Sharangdhar Samhita*. This paper presents the analytical study of the formulation.

Key Words *Timira, Timirahara lauha vati, Analytical study*

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INTRODUCTION

In the *vati kalpana* pharmaceutical technique, the powder of raw drugs (Herbal or Herbo-mineral) is triturated with certain juices, decoctions, or other liquid media, and the medicine are manufactured in the form of pills or tablets when the mixture changes into a fine paste[1]. A secondary preparation mentioned in the field of Ayurvedic pharmaceutical science is called *Vati Kalpana.* The terms *Gutika* (pills), *Modaka* (large size pills), and *Varti*(draggees) are synonyms for *Vati*(tablets)[2]. According to its shape, dosage, and route of administration, *vati kalpana* is known by these names. Due to its palatability, ease of administration, and practical shape for dispensing and transportation, vati kalpana plays a significant part in Ayurvedic pharmaceutics. Because of its accurate dosing, longer shelf life, and palatability, *vati kalpana* is frequently used in clinical practise today[3].

AIM AND OBJECTIVES

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1) To analyze the physical or organoleptic character of drug.

2) To find out the sterility test and physiochemical test of Timirahara lauha formulation prepared by classical and modified methods.

Figure1 *Emblica officinalis*

Figure 2 *Terminalia chebula*

Figure 3 *Terminalia bellirica*

Figure 4 *Glycyrhiza glabra*

Figure 5 *Nelumbo nucifera*

Figure 6 *Lauha bhasma*

MATERIALS AND METHODS

Collection of raw materials :

The raw drugs for the preparation of *Timirahara lauha* were procured from the Hans Ayurvedic pharmacy Sidcul Haridwar, Uttarakhand .The P.G. Department of Dravyaguna ,Rishikul Campus ,Haridwar identified the ingredients, and the voucher (DG/RC/UAU-137:02/02/2023) of the specimen sample was kept in the department.

Table 1 Ingredients of Timirahara Lauha vati[4]

	Name			Family	Part Used
S.No.	Sanskrit	English	Botanical		
1	*Aamlaki*	Indian gooseberry	*Emblica officinalis*	Euphorbiaceae	Fruit
2	*Vibhtaka*	Baheda	*Terminalia bellirica*	Combreataceae	Fruit
3	*Haritaki*	Chebulic myrobalan	*Terminalia chebula*	Combreataceae	Fruit
4	*Yashtimadhu*	Liquorice	*Glycyrrhiza glabra*	Fabaceae	Root
5	*Padma*	Sacred lotus	*Nelumbo nucifera*	nelumbonaceae	Flowers
6	*Lauha*				*Bhasma*

Method of preparation of *Timirahara lauha vati*

The *Timirahara Lauha Vati* was prepared in the GMP-approved Hans Ayurvedic Herbal Pharmacy, Sidcul, Haridwar, Uttarakhand, in accordance with the Ayurvedic Pharmacopia of India's standard operating procedure for the production. The first six drugs mentioned in table 1 were taken in equal amounts. First, a hot air dryer set to 50–55°C was used to dry every herbal medicine. Separately, the five herbal medicines were ground into fine powder and put through sieve number 85. Equal quantity of fine powders of all drugs was mixed together uniformly.The babool gond binder solution was then added to the mixture. In a stainless steel tray, the obtained wet material was laid down in a layer that is 5-7 mm thick. This tray was kept at 55 °C in a hot air dryer. To create granules, this dry bulk was run through a multi-mill with a sieve no.of 20. Talc and Magnesium stearate, the materials lubricating agents, all were thoroughly combined, sieved through sieve no. 100, and combined with the dried granules. Finally, a rotating multi-station tablet punching machine outfitted with punches and dies measuring 250mg compacted the tablets.To keep the *vati* safe from moisture and light,packing & storage was done inside an airtight container.

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Method of evaluation of *Timirahara Lauha Vati*: The *vati* was evaluated by employing parameters mentioned in Ayurvedic Pharmacopeia of India & protocol of Ayurvedic drug testing of PLIM, Ghaziabad, UP, India[5-6]

Physicochemical analysis :Sample was subjected for physicochemical analysis such as Loss on drying at 105°C. Loss on drying was calculated after placing the 10g of sample in the tared evaporating dish, drying at 105° C for 5 hours.(Table 3)

Heavy Metal Test: Spectrometry of the sample was also carried out for the presence of heavy metals such as cadmium (Cd), lead (Pb), mercury (Hg), arsenic (As). All the metals were present in the ointment in safe range.(Table 4)

Microbial Analysis: *Timirahara lauha Vati* was evaluated for total bacterial count and total fungal count count. Total bacterial count was carried out by plate count method, which is mentioned in A.P.I, Part II, Vol-I, Appendices 2.4 .(Table 5)

Uniformity of Weight/ Weight variation test: By weighing and calculating the weights of 20 randomly chosen tablets from a batch of tablets, the test for weight uniformity is carried out. The individual weights are compared with the average weight[7] (Table 2).

Disintegration Time Test: Disintegration, also known as tablet breakdown into granules or primary powder particles, is a crucial first step in the dissolution of tablets. The device consists of a basket-rack assembly holding six transparent tubes with open ends vertically on a screen made of 10-mesh stainless steel wire. A tablet was inserted in each of the six tubes of the basket during testing, and the basket was elevated and lowered in a fluid bath at a rate of 30 to 32 cycles per minute for 15 minutes[8].

RESULT AND DISCUSSION

Table 2 Physical characterization Description

Test parameters	Results
Appearance	Reddish brown coloured round shaped biconvex uncoated tablet
Colour	Reddish Brown
Odour	Characteristic
Taste	Characteristic
Average weight(mg) of a tablet	258.46
Uniformity of weight (%)	Within limit
Disintegration time (min)	24-25 min

Table 3 Physicochemical analysis

Total bacterial count (cfu/g)	**46000**
Yeast and Mould count (cfu/g)	100
Eschericha coli	Absent
Staphylococcus aureus	Absent
Pseudomonas aeruginosa	Absent
Salmonella species	Absent

Table 4 Heavy Metal

Heavy Metal	Results
Lead (Pb) ppm	2.74
Arsenic (As) ppm	<0.50
Cadmium (Cd) ppm	0.09
Mercury(Hg) ppm	<0.13

Table 5 Microbiological limit test

Test parameters	Results
Loss on drying (%w/w)	4.66
Total Ash (%w/w)	24.91
Ac/id insoluble ash (%w/w)	6.79
Alcohol soluble extractive (%w/w)	12.05
Water soluble extractive (%w/w)	40.19

CONCLUSION

A herbomineral composition termed *Timirahara lauha* is mentioned in *Rasendra Sara Sangrah, Netraroga Chikitsa* in the management of *Timira*. *Chakshusya, Rakatavardhak,* and *Tridshashamaka* are the properties of the *vati.* The all ingredients were proven authentic and

easily available. A pharmacognostical analysis of *vati* demonstrated the distinctive qualities of this medication. Microscopical characteristics, physico-chemical parameters, sterility, heavy metal testing, and microbiological analysis are essential parameters for ensuring the drug's safety and quality. All parameters of *Timirahara lauha vati* were found to be within normal limits (as shown in table 2,3,4 and 5) and may be used for standardisation and quality evaluation of the medicine for future researchers.

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