Research Article

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ANALYTICAL STUDY OF SAPTAMRITA LAUHA: AN AYURVEDIC HERBO-MINERAL FORMULATION

Gunjan Sharma [1], Renu Prasad [2]*, Kanchan Pant [3]

[1] Professor and HOD, PG Department of Shalakya Tantra, Rishikul Campus, Uttarakhand Ayurved University Haridwar, Uttarakhand, India

[2] Associate Professor, Department of Shalakya Tantra, Rishikul Campus, Uttarakhand Ayurved University, Haridwar, Uttarakhand India

[3] PG Scholar, PG Department of Shalakya Tantra, Rishikul Campus, Uttarakhand Ayurved University Haridwar, Uttarakhand, India

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***Corresponding author**
E-mail: docrenuprasad@gmail.com

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ABSTRACT

Saptamrita lauha is one of the herbo-mineral formulations. In Ayurveda classics, there are so many references available for Saptamrita lauha. The formulation distinctively improves eyesight and haemoglobin by its properties chaksushya (good for eyesight) and raktavardhak (haematinic). Standardization of formulation is essential in order to evaluate the quality of formulation. Making tablets from herbo-mineral drugs will aid in uniform dosage form, better palatability and easy acceptability in children. The pharmaceutical analysis method of Saptamrita lauha formulation was done according to the API and drug testing protocol of the Pharmacopoeial laboratory for Indian Medicine (PLIM). Materials and Methods: The prepared drugs were evaluated for organoleptic study, physicochemical study, pH value and microbiological studies for developing standards. Result: Due to low levels of heavy metals and lack of pathogenic bacteria, the formulation is safe for use. Conclusion: The results of pharmacognostical and pharmaceutical parameters have generated data that could be used as a fingerprint for future research. This paper presents the analytical study of the formulation.

Keywords: Herbo mineral, Chaksushya, Saptamrita lauha.

INTRODUCTION

Ayurveda is one of the ancient forms of medical system practised in the Indian sub-continent, and now it is an integral part of the Indian Medical convention related to the wholesome cure of ailments by the natural remedies in the form of both herbal and herbo-mineral formulations[1] and purification procedures[2]. In Ayurveda, head, eyes, nose, throat, tongue, gums and dental disease are studied in a separate branch, "Shalakya tantra"[3]. Shalakya tantra is one of the full-fledged branches of Ashtanga Ayurveda. Glimpses of its achievements are scattered in ancient literature. Saptamrita lauha is an Ayurvedic polyherbal formulation mentioned in Bhaishajya Ratnakar, having its indication in Timira (eye disease). The formulation contains four plant medicine Haritaki, Vibhitaki, Amalaki, Yastimadhu and lauha bhasma, madhu (honey), and ghrita (ghee).

Vati kalpana is a procedure in which the powder of raw drugs (herbal or herbo-mineral) is triturated with certain juice, decoctions or various liquid media, and the medicines are prepared in the form of tablets after the mixture turns into a fine paste.[4] Vati (tablets) is a widely accepted dosage form due to its palatability, convenient dispensing, and easy administration. This paper presents an analytical study of formulation which may serve as supporting literature for future studies and to maintain the standard quality of the formulation.

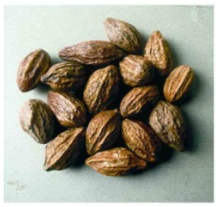
MATERIAL AND METHODS

Aims and objectives.

1. To analyse the physical or organoleptic character of the prepared drug.
2. To find out the sterility and physicochemical tests of Saptamrita lauha.

Table 1: Ingredients and Composition of Saptamrita lauha[5]

Drug	Latin name/Family	Rasa	Virya/Vipaka	Part Used
Haritaki	*Terminalia chebula* Combretaceae	Pancharasa, Kashaya pradhana	Ushna/Madhura	Fruit
Vibhitaki	*Terminalia bellirica* Combretaceae	Kashaya	Ushna/Madhura	Fruit
Amalaki	*Emblica officinalis* Euphorbiaceae	Pancharasa, Amla pradhana	Shita/Madhura	Fruit
Yasthimadhu	*Glycyrrhiza glabra* Fabaceae	Madhura	Shita/Madhura	Root
lauha Bhasma		Tikta, Kashaya	Shita/Madhura	_
Ghrita	Cow's ghee	Madhura	_	_
Madhu	Mal depuratum	Madhura, Kashaya	Shita/Madhura	_



Terminalia chebula

Terminalia bellirica

Emblica officinalis

Glycyrrhiza glabra

Lauha Bhasma

Ghrita

Madhu

Collection of raw materials: The raw drugs for Saptamrita lauha were procured from the Hansa Pharmacy Premnagar Ashram, Haridwar. The PG Department of Dravyaguna, Rishikul Ayurvedic Medical College Haridwar, identified the ingredients. The final product was prepared in the Hans Pharmacy Premnagar Ashram, Haridwar, Uttarakhand, India.

Method of preparation of Saptamrita lauha

Saptamrita lauha was prepared in the GMP-approved Hans Ayurvedic Herbal Pharmacy, Sidcul Haridwar, Uttarakhand, following the Ayurvedic Pharmacopoeia of India's standard operating procedure for production. The first five drugs in Table 1 were taken in equal amounts. First, a hot air dryer set to 50-55 ^{0}C was used to dry every herbal medicine. Separately, the five herbal medicines were ground into a fine powder and put through sieve number 85. An equal quantity of fine powders of all drugs was mixed uniformly and triturated with honey and ghee to obtain fine paste consistency. The paste was put in a multi-station tablet punching machine outfitted with punches and died measuring 500 mg compacted the tablets. To keep the vati safe from moisture and light, packing and storage were done inside an airtight container.

RESULTS AND DISCUSSION

The vati was evaluated by employing parameters mentioned in Ayurvedic Pharmacopoeia of India and protocol of Ayurvedic drug testing of PLIM, Ghaziabad, UP, India.[6-7]

Physicochemical analysis: The sample was subjected to physicochemical analysis, such as loss on drying at 105 ^{0}C. Loss on drying was calculated after placing the 10 gm of sample in the tared evaporating dish, drying at 105 ^{0}C for 5 hours.

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), and arsenic (As). All the metals were present in the ointment in a safe range.

Microbial Analysis: Saptamrita lauha was evaluated for the total bacterial and fungal counts. The total bacterial count was carried out by the plate count method, which is mentioned in API, Part II, Vol-I, Appendices 2.4.

Uniformity of Weight/ Weight variation test: The test for uniformity of weight is performed by weighing 20 tablets randomly selected from a tablet batch and determining their weights. The individual weights are compared with the average weight[8].

Disintegration Time Test: For tablets, the first important step towards drug dissolution is a breakdown of the tablets into granules or primary powder particles, a process known as disintegration. The apparatus is a basket-rack assembly containing six open-ended transparent tubes held vertically upon a 10-mesh stainless steel wire screen. During testing, a tablet was placed in each of the basket's six tubes, and through a mechanical device, the basket was raised and lowered in a bath of fluid at 30 to 32 cycles per minute for 15 minute[9].

Table 2: Physical Characterization Description

Appearance	A dark brown coloured round shaped uncoated tablets
Colour	Dark brown
Odour	Characteristic
Taste	Characteristic
Average weight (mg) of a tablet	561.8
Uniformity of weight	Within limits
Disintegration time (minutes)	26-27

Table 3: Physicochemical analysis

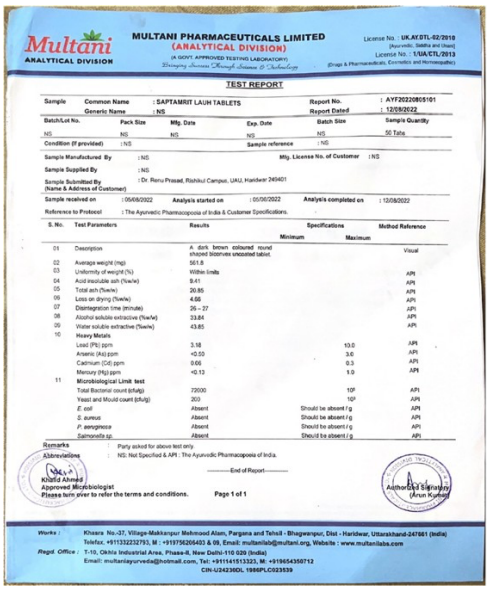
Total ash (w/w%)	20.85
Acid insoluble ash (%w/w)	9.41
Water soluble extractive (%w/w)	43.85
Alcohol soluble extractive (%w/w)	33.84
Loss on drying	4.66

Table 4: Heavy Metal

Lead (Pb)ppm	3.18
Arsenic (As)ppm	<0.50
Cadmium (Cd)ppm	0.06
Mercury (Hg)ppm	<0.13

Table 5: Microbiological limit test

Total bacterial count	72000 cfu/g
Yeast and mold	200 cfu/g
Pseudomonas aeruginosa	Absent
Staphylococcus aureus	Absent
Escherichia coli	Absent
Salmonella sp.	Absent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(ANALYTICAL DIVISION)

TEST REPORT

Figure 1: Analytical Report from Multani Pharmaceuticals Ltd.

CONCLUSION

A herbomineral composition termed Saptamrita lauha is mentioned in Bhaishajya Ratnavali in the management of Timira. Chakshusya, rasayana, and Vata Pitta shamaka are the properties of the vati. All the ingredients were proven authentic and readily available. A pharmacognostical analysis of vati demonstrated the distinctive qualities of this medication. Microscopical characteristics, physiochemical parameters, sterility, heavy metal testing, and microbiological analysis are essential to ensure the drug's safety and quality. All parameters of Saptamrita lauha were within normal limits and may be used for standardization and quality evaluation of the medicine for future researchers.

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