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PHARMACEUTICAL PREPARATION AND STANDARDIZATION OF "VARUNADHYA LOHAM"

Ayurveda

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ABSTRACT

Background: In present scenario Ayurveda spread globally. Rasa Shastra is the most important branch of ayurveda. Rasa Shastra deals with the metallic and herbo mineral preparations with their types, occurrence, physical properties and organoleptic characteristics. Rasausadhi are appreciated for their smaller dosages, quick effectiveness and long stability. Urolithiasis is common problem in present scenario. Clinically features of Urolithiasis (*Ashmari*roga) is described even in Veda, the oldest repositories of human knowledge. The Veda are well thought-out as the oldest record of knowledge in our culture.

Aims: Preparation and assurance of safe and efficacious "*Varunadhya Lauha*m". Standardization of "*Varunadhya Lauha*m".

Material and Methods: In the pharmaceutical study, all the shodhan process were carried out according to general method adopting in *rasa shastra*, maran of *Lauha bhasma* of 15 putas were prepared as per the guidelines mentioned in *Rasamrit* and dhanyadhraka, maran of *Abhraka bhasma* of 30 puta. *Amratikaran* and *Lohitikaran* were prepared as per the guidelines mentioned in *Rasa tarangini*.

Results: In *Lauha bhasma* the elements were detected - Iron was present 39.71%. In *Abhraka bhasma*, Aluminium was present 5.16% w/w Silica was present 12.54%w/w Potassium was present 7.96%w/w Iron was present 13.47%w/w Magnesium was present 3.78%w/w. Heavy elements like Pb (Lead), Cd (Cadmium), Hg (Mercury) respectively 0.17ppm, ND (DL 0.1) ppm, ND (DL 0.1) ppm were detected. As (Arsenic), was not detected

Conclusion: As no standards are available in Govt. recognized text book viz. A.F.I., Few standards are set for *Varunadhya Lauha* after analysing the samples it was observed that pH Value (1%w/v)- 3.80, Loss On Drying-1.10%w/w, Particle Size (by mesh)- Very fine, Total Ash-17.36% w/w, Acid Insoluble Ash-11.16% w/w, Water Soluble Ash-4.49% w/w, Sulphated Ash-18.09% w/w, Water Soluble extractive-31.84% w/w, Alcohol Soluble extractive-29.48% w/w. HPTLC analysis was done and finger print profile of *Varunadhya Lauha* was developed.

KEYWORDS

Ayurveda, Urolithiasis, Ashmari Roga, Renal Stone.

INTRODUCTION

Ayurveda is very ancient and complete medical science. It have many branches, among them Rasa Shastra is one, which deals with the mercurial, mineral and metallic processing and preparation of different *Rasaushadhi*. *Rasashastra* is a branch of Ayurveda, which deals with metals and minerals to produce the drugs with higher efficacy in lower doses and with good palatability. *Rasausadhi* are appreciated for their smaller dosages, quick effectiveness and long stability.

This branch of Ayurveda has been playing an important role in curing the sick people. *Ashmari* is known to mankind since times immemorial. Clinical features of the disease are described even in Veda, the oldest repositories of human knowledge.

According to *Sushruta*, *Vata*, *Pitta* and *Kapha* enter the vasti and after mixing with urine form calculi due to their adhesiveness. As even clean water kept in a new pitcher gets muddy in course of time, in a similar way calculi is formed in basti.[1]

Sushruta had described as the wind and fire of lightening jointly condense the rain water, in the same way *Vayu* and *Pitta* jointly contribute for condensation of *Kapha* in basti (urinary bladder) to form *Ashmari* and there is the *Kapha* is considered as nucleus or nidus of every type of *Ashmari*.

Acharya Charaka illustrates the process of formation of *Ashmari* with the example of Gorocana. He says that Mutra is converted into *Ashmari* when the Dosayukta Mutra or *Sukrayukta Mutra* enters into Basti, where they are dried up by the action of *Vayu* and *Pitta*.[2]

"*Varunadhya Lauha*" is one such formulation described in *Rasendera chintamani mutrakracha mutragata rogadhikara.*[3]

OBJECTIVES OF THE STUDY

The present pharmaceutical study is planned with the following aims & objectives –

- To preparation of *Lauha bhasma* and *Abhraka bhasma*
- To ensure the safe preparation with efficacy of "*Varunadhya Lauha*m"
- To standardization of "*Varunadhya Lauha*m".

PHARMACEUTICAL STUDY

Materials and methods:

In the pharmaceutical study, all the shodhan process were carried out according to general methods adopting in *rasa shastra*, maran of *Lauha bhasma* of 15 putas were prepared as per the guidelines mentioned in *Rasamrit* and dhanyadhraka, maran of *Abhraka bhasma* of 30 puta, *Amratikaran* and *Lohitikaran* were prepared as per the guidelines mentioned in *Rasa tarangini*. All the herbal contents of this formulation were powdered and were mixed with *bhasma* uniformly. Final product of "*Varunadhya Lauha*" was selected for standardization.

This preparation was based on availability, practicability in classical texts of Rasa Shastra, traditional value and expert opinions. All the raw materials were procured from the college pharmacy.

Pharmaceutical processes carried out during the study are as follows –

1. Preparation of *Abhraka bhasma*[4]
2. Preparation of *Lauha bhasma*[5]
3. Preparation of powders of raw drugs
4. Mixing of powder of all herbal drug and both *bhasma*.

Output of 1-30 puta of *Abhraka bhasma*–

No. of puta	Before puta weight	After puta weight	Loss
1-10 puta	1160	989	14.74%
11-20 puta	989	979	1.01%
21-30 puta	979	942	3.77%

Quantity of *Abhraka bhasma* Obtained - 942 g
% loss during 1- 30 putas – 18.79%

Readings during *vishesh shodhana* of *Lauha*[6]

Initial wt. of *Lauha*	Colour	Final yield	Time Taken to get red hot (In minute)	Specific observation
960 g.	Dark Black	1020 g	Each time 25 minute, except 1st was 30 minute	Total volume and Fragmentation further increased and the *Lauha* powder was become lighter as compare to *samanya sodhana* might be due to incorporation of *triphala kasaya*

Outcome of *Vishesh shodhana*

Colour –dark Black
Consistency - Charred like charcoal, light fragile in nature.
Yield quantity of *Lauha* - 1020 g
% gain of *Lauha* -8.3%

Readings of 1st to 15th puta of *Lauha bhasma*[7]

Product Obtained–

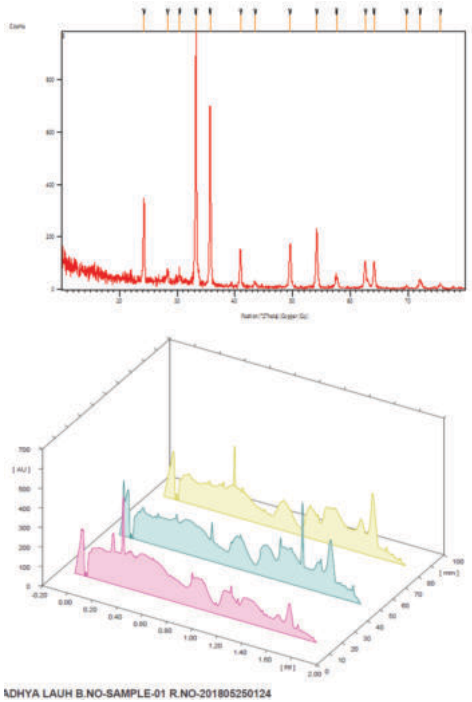
- Quantity of *Lauha bhasma* Obtained - 855 g
- % loss during1-15 putas – 10.1%

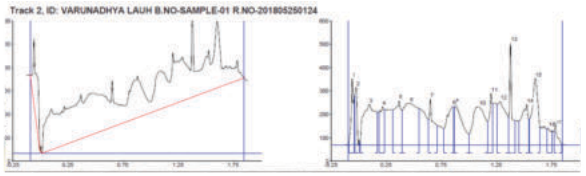
Final Result of preparing of Varunadi *Lauha*

S.N.	Ingredients	Latin name	Parts used	Wt. of powder of ingredient (gms)	Ratio in varunadi *Lauha*
1.	*Varuna*	*Crataevanurvala*	Stem bark	1148	8 parts
2.	*Prashanaparni*	*Ureriapicta*	Root	574	4 parts
3.	*Aamlki*	*Emblikaofficinelis*	Fruit	574	4 parts
4.	*Haritaki*	*Terminalia chebula*	Fruit	286	2 parts
5.	*Dhatki*	*Wood fordia frutiacosa*	Flower	143	1 part
6.	*Abhrakh bhashma*	-	-	143	1 part
7.	*Lauha bhashma*	-	-	143	1 part

Analytical study deals with the analysis of the values of some physical constants and chemical values of the prepared formulation. In present research work *Lauha bhasma*, *Abhraka bhasma* and *Varunadhya Lauha* (self prepared) were tested on various preliminary standardization parameters as well as on some of the complicated analytical tests at S R Labs & Research Centre Jaipur, Rajasthan. Here an attempt was made to put physio-chemical standards of *Lauha bhasma*, *Abhraka bhasma* and *Varunadhya Lauha*. Regarding Organoleptic characters, the colour of *Varunadhya Lauha* is light brown and its odour was Characteristic. On the ground of Physico-chemical parameters Particle Size (by mesh) was very fine, Total Ash percentage was 17.36% w/w, Acid Insoluble Ash was 11.16%, Water Soluble Extractive was 4.49%, Alcohol Soluble Extractive was 31.84%, Loss on drying is expressed in terms of 1.10%w/w, Sulphated Ash was 18.09% w/w.

HPTLC:- An Ayurvedic formulation prepared by set of standard instructions, which are followed by classical literature or Ayurvedic Pharmacopoeia. Formulation and its ingredients have defined as standard composition and simultaneously it is a prime requirement to standardize the formulation by using modern analytical techniques.





In HPTLC method, defined stationary phase and mobile phase developed for *Varunadhyalauh* formulation, from which different bands were observed. Bands are having their unique Rf values. Fingerprint profile development is only depending on standard set of Rf values obtained from *Varunadhyalauh* formulation. This will be treated as future reference for such kind of composition and their ingredients processed by standard reference method. Also this study supplies a data for quality control of manufactured products. An Ayurvedic industry can utilize this study for their in-house QC and GMP purpose.

XRD Analysis of *Lauha bhasma* :-

The main compound diffraction peaks corresponding to 33.1686 and 35.6699 (2 theta) with d spacing 2.517 and 2.516 planes of γ-Fe_2O_3 and Fe_2O_4 are present. Sharp single peaks shows that major compounds of iron.

XRD Analysis of *Abhraka bhasma* was sharp single peaks shows that major compounds of Iron, Aluminium, Silica and Magnesium.

Elements essay:-

In *Lauha bhasma* the elements were detected - Iron was present 39.71%.

In *Abhraka bhasma*, Aluminium was present 5.16% w/w Silica was present 12.54%w/w Potassium was present 7.96%w/w Iron was present 13.47%w/w Magnesium was present 3.78%w/w.

Heavy elements like Pb (Lead), Cd (Cadmium), Hg (Mercury) respectively 0.17ppm, ND (DL 0.1) ppm, ND (DL 0.1) ppm were detected. As (Arsenic), was not detected. The reason may be the raw drugs already containing heavy metals or may be added from water or due to cross-contamination while preparing. But as all the heavy elements were within their permissible limits, the drug was safe for the experimental trial.

CONCLUSION

- In the pharmaceutical study, *Lauha bhasma* obtained after 15th puta (the final yield) was 855gm out of 1 kg i.e. 14.5% loss was observed.
- *Lauha bhasma* after 15th puta can be passed easily through 300 no. sieve size.
- In analytical study of *Lauha bhasma* it was observed that pH Value (1%w/v)- 6.40 Loss of drying-0.95%w/w, Particle Size (by mesh)- Very Fine, Total Ash-98.32% w/w, Acid Insoluble Ash-89.02% w/w, Water Soluble Ash-6.54% w/w. Assay of Element observed that Iron-39.71% w/w. Xrd analysis show that sharp single peaks shows that major compounds of iron.
- Out of 1 kg of *Abhraka bhasma* after 34 putas (included *Lohitikaran*putas) the final yield was 930gm i.e. 7.0% lose was observed.
- *Nischandrikarana* of *Abhraka bhasma* is a very tedious work. After 24th puta no *chandrika* were present in *Abhraka bhasma*.
- *Abhraka bhasma* didn't pass easily through 200 no mesh size due to its light weight. So it should be sieved by using cotton cloth.
- In an Analytical study of *Abhraka bhasma* it was observed that pH Value (1%w/v)- 8.30, Loss on Drying-0.98%w/w, Particle Size (by mesh)- Very Fine, Total Ash-99.51% w/w, Acid Insoluble Ash-85.36% w/w, Water Soluble Ash-2.47% w/w. Assay of Element observed that Aluminium -5.16% w/w, Silica - 12.54%w/w, Potassium-7.96%w/w, Iron-13.47%w/w, Magnesium-3.78%w/w. Xrd analysis show that sharp single peaks shows that major compounds of Iron, Aluminium, Silica and Magnesium.
- As no standards are available in Govt. recognized text book viz. A.F.I., Few standards are set for *Varunadhya Lauha* after analysing the samples it was observed that pH Value (1%w/v)- 3.80, Loss On Drying-1.10%w/w, Particle Size (by mesh)- Very fine, Total Ash-17.36% w/w, Acid Insoluble Ash-11.16% w/w, Water Soluble Ash-4.49% w/w, Sulphated Ash-18.09% w/w, Water Soluble extractive-31.84% w/w, Alcohol Soluble extractive-29.48% w/w. HPTLC analysis was done and finger

print profile of *Varunadhya Lauha* was developed.

- In an Analytical study traces of heavy elements were detected. viz. Lead 0.17ppm, Arsenic-ND, Cadmium-ND (DL 0.1) Mercury-ND (DL 0.1) etc. The reason was minerals added in raw drugs from water or due to cross-contamination while preparing.

REFERENCES

1. Sushruta Samhita: Maharshi Sushruta, edited with Ayurveda tattva sandipika Hindi Commentary by Kaviraja Ambikadutta Shastri Part 1 Chaukhamba Sanskrit sansthan Varanasi Reprint 2011 3/25, 26
2. Agnivesha tantra : Charaka samhita (uttarardha) revised by charaka and Dhidhabala with Viddhotini Hindi commentary by Dr. kasinath sastri ,Dr.Gorakhnath chaturvedi Vol. II, Published by Chaukhamba bharti academy Varanasi, Reprint year 2011 - 26/36
3. Rasendra Chintāmani: Dhundhukanāth with Mani Prabhā Commentary of Manirām Sharma, Samsodhana by Vaidya Srinath Sharma, Published by Vaidya Maniram Sharma, Ratangarh (Rajasthan), 2st Ed., 2000 - 9/5-8 page no. 276.
4. Rasa Tarangini: Shri Sadananda Sharma, with Sanskrit Commentary Prasadani by Shri Haridatt Shastri and Hindi Rasa Vigyana Commentary by Pt. Dharmananda Shastri, Edited by Pt. Kashinath Shastri, Motilal Banarsidas, New Delhi, Ed.-11th,1979 10/35-37
5. Rasamritam: Vaidya Yadavji Trikamji Acharya, Motilal Banarsidas, Varanasi, 19513/134-136
6. Rasa Tarangini: Shri Sadananda Sharma, with Sanskrit Commentary Prasadani by Shri Haridatt Shastri and Hindi Rasa Vigyana Commentary by Pt. Dharmananda Shastri, Edited by Pt. Kashinath Shastri, Motilal Banarsidas, New Delhi, Ed.-11th,1979- 20/18
7. Rasamritam: Vaidya Yadavji Trikamji Acharya, Motilal Banarsidas, Varanasi, 19513/134-136