

Critical review on yakrudrari lauha with special reference to rasendra sara sangraha

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Abstract : Background: Hepatosplenic ailments (i.e., hepatomegaly, splenomegaly and chronic parenchymal damage, etc.) make up a major and increasingly growing global burden in health today. In Ayurveda, Rasaushadhis (herbo-mineral formulations) contain highly effective, very specific and extremely fast acting medicines using minimal amounts of material. Yakrudarari Lauha is one such classical formulation that is routinely recommended for the treatment of severe Yakrut and Pleeha Vikara.

Objective: The objective of this study was to perform a critical review of the pharmaceutical details and medicinal rationale behind Yakrudarari Lauha, specifically regarding the formulation as referenced in Rasendra Sara Sangraha.

Materials and methods: A thorough literature search was performed through classical Ayurvedic texts (primarily Rasendra Sara Sangraha), as well as current electronic databases, to compare traditional information with current pharmacological knowledge.

Results: The critical analysis provides a detailed explanation of the highly advanced and synergistic action of the different components of Yakrudarari Lauha. The mineral ingredients (Tamra, Lauha, and Abhraka Bhasma) provide significant hepatoprotective (providing a protective effect on the liver), hematinic (beneficial in producing red blood cells) and biliary decongestant (reducing congestion / blockage of the biliary ducts) effect. The herb type components of Yakrudarari Lauha (e.g. Trikatu, Triphala, and Chitraka) are also a key component at promoting and enhancing systemic uptake of metallic nanoparticles and in reducing localized tissue inflammation and oxidative stress (damage) to the liver.

Conclusion: Yakrudarari Lauha provides a broad-spectrum restorative treatment that not only relieves symptoms of hepatosplenomegaly, but also reverses the pathological process (Samprapti Vighatana). This review demonstrates strong foundation of literature and science to show that more pharmaceutical standardization and evidence-based clinical trials are urgently needed to include this powerful formulation in regular medical care.

Index Terms- Yakrudarari Lauha, Rasendra Sara Sangraha, Hepatosplenomegaly, Rasaushadhi, Pharmacological Review.

I. INTRODUCTION

Ayurveda is the science of life which is segregated by its dual objective Swasthasya swasthya rakshanam (maintaining healthy life) and Aturasya vikara prashamanam (curing various disorders). Ayurveda principles are rooted in Panchmahabhuta (five essential elements) and Tridosha (vata, pitta and kapha), Ayurvedic therapeutics emphasizes on a holistic approach to disease management. to achieve these therapeutic goals classical texts of Ayurveda have meticulously documented a naturally occurring substances from plant material to animal origin, to metal and minerals utilizing them for clinical applications.

In Ayurveda Rasashastra and Bhaishajya Kalpana is the branch where these materials are being processed with various types of pharmaceutical procedures to make them fit for therapeutics. There are thousands of formulations which are mentioned in classical texts with the combination of bhasma of metals and minerals, use of herbal decoctions for shodhana (purification) and marana (incineration). Ayurveda has an extensive pharmacopoeia, which is predominantly herbs and minerals. Their healing properties are well summarized in the modern texts. Ayurveda formulations are often complex with several herbal-mineral ingredients which are governed by well described pharmacological principles of preparation, compatibility and administration. Ayurvedic practitioners often modify various formulations to suit the individual constitution (prakruti), which confers genetic predisposition toward disease and therapy response and is vital to ensure medication safety. Safety is fundamentally bound to efficacy, forming an important endpoint when preparing an Ayurvedic medicine.

Among the various Dhatu Kalpanas, lauha Kalpana (iron based formulations) holds a prominent and extensively documented position in classical texts of Ayurvedic therapeutics. The therapeutic application of lauha can be traced back in the Vedic era, but nowadays its refined pharmaceutical application is elaborately detailed in the Charaka samhita and sushruta samhita. They have clearly mentioned Ayaskriti (iron processing) for the management of Pandu (anemia) and prameha (diabetes). Lauha Kalpana are

highly significant for their Rasayana (rejuvenating), balya (strength-promoting), and raktavardhka (hemantonic) properties. They are uniquely capable of penetrating deep dhatus (tissues) and are indicating in systemic disorders.

Yakrudrari lauha is mentioned in the pleeha chikitsa (spleen disorders) rogadhikara which is known for treating all types of pancreatic and liver disorders. The Etymology of this formulation refers as ‘Yakrit’ translates to liver and ‘ari’ means enemy thus Yakrudrari lauha literally means “The enemy of Liver Ailments”. Acting as the body metabolic gatekeeper, this organ serves as central seat for the ‘Ranjaka pitta’. This localized metabolic Agni (fire) is essential for blood formation, as it processes absorbed nutrients and transforms them into a vital blood. It is a highly potent khalvia rasayana/ lauha kalpa. Its primary work is to treat Yakrit-pleeha roga (disorder of liver and spleen).

II. NEED FOR THE STUDY

Hepatosplenic disorders are a significant global public health concern and current methods of medical management are limited in their ability to provide definitive restorative therapies without side effects for chronic liver parenchymal injury. As per the principles of Ayurveda, Rasaushadhis have attained quick therapeutic action by way of their minimal dosage. Yakrudarari Lauha is an example of a classical herbo-mineral preparation documented as an important formula within the text Rasendra Sara Sangraha that is used to improve the condition of an individual who suffers from severe Yakrut and Pliha Vikara. Although Yakrudarari Lauha has been clinically proven effective in reducing hepatomegaly, splenomegaly and the associated effects, there currently does not exist complete scientific literature to demonstrate the pharmaceutical rationale for this preparation and provide thorough analysis regarding its active ingredients. Therefore, there is a pressing need to review comprehensively Yakrudarari Lauha with emphasis on Rasendra Sara Sangraha to provide a basis for appropriate standardization of Yakrudarari Lauha and subsequently for clinical application of Yakrudarari Lauha upon the basis of scientific evidence.

III. LITERATURE SURVEY

Important classical texts of Ayurveda pioneer bruhat traiye (treatise) to laghu traiye, rasendra sara sangraha to Bhaishajya Ratnavali and some of the later centuries Ayurveda classic texts have been sourced for this critical review. Yakrudrari lauha has been mentioned in the rasendra sara sangraha having key ingredients like Lauha bhasma, Abhraka Bhasma, Tamra bhasma, Mrigcharam bhasma and Jambira nimbu swarasa for the preparation of vati. All of these ingredients with their individual properties will be reviewed meticulously.

Table no. 1 Ingredients of Yakrudrari Lauha

Sr. No.	Name	Chemical composition ³	Part used	Quantity
1.	Lauha bhasma	Fe ₂ O ₃ , FeO, Silica, Phosphorous, magnesia, CaO, NaCl, Potash, Sulphuric anhydride.	bhasma	1karsha(12gms)
2.	Abhraka bhasma	SiO ₂ , Fe ₂ O ₃ , Al ₂ O ₃ , CaO, MgO, K ₂ O, Na ₂ O, Chlorides, Sulphates, Phosphates, Nitrates and Moisture	bhasma	2 Karsha(24gms)
3.	Tamra bhasma	Cu ₂ S, CuS, Fe ₂ S, Cu ₂ O, Fe ₂ O	bhasma	1karsha(12gms)
4.	Mrigcharm bhasma	-	bhasma	1 pala(48gms)
5.	Jambiri nimbu (Citrus jambhiri)	7-10% citric acid, phosphoric acid, malic acid, mucin and alkaloids etc.	root bark	1 pala(48gms)

The group of metals, which are now denoted as ‘dhatu varga’ were identified as loha varga in earlier classical texts of Ayurveda, there were 7 metals which is listed as in loha varga. With the more development in the field of Rasashastra the term ‘lauha’ was general term for the group of metals, which was restricted only to metal ‘iron’ and new term ‘Dhatu’ was used in its place. The term ‘dhatu’ is the one which cures the human ailments like vali (premature wrinkles on skin), palita (premature greying of hairs), ablaya (general debility) and jraamyā (geriatric ailments). It is the one which does ‘Deha dharana’ (which brings stability in the body) by curing all the diseases.

Lauha references can be readily traced from literatures like Veda, Upnishda, and Purana. In many places of Charaka samhita and shushruta samhita there is references mentioning about use of lauha as ‘Ayaskriti’.

Table no. 1 showing different types of Lauha

Lauha (Iron)		
Munda Lauha(cast iron)	Tikshana Lauha (Wrought iron)	Kanta lauha (Magnetic iron)
1. Mrdu- munda	1. Khara- tikshana	1. Bhramaka- kanta
2. Kuntha- munda	2. sara- tikshana	2. Chumbaka- kanta
3. kadara- munda	3. Hrnna- tikshana	3. Karsaka- kanta
	4. Taravatta- tikshana	4. Dravaka- kanta
	5. vajira- tikshana	5. Romantaka- kanta
	6. Kalayasa- tikshana	

There is need of mentioning the types of lauha as there are so many varieties and sub varieties of lauha which one to use for the medicinal purpose makes the complete difference. Kanta lauha is claimed to be best variety for the therapeutics.

Table no. 2 Properties of lauha bhasma

Sr. No.	Properties	
1.	Rasa	Kashaya rasa
2.	Guna	Guru and lekhana
3.	Veerya	Madhura
4.	Vipaka	Sheeta
5.	Prabhava	Balya, vrushya, kapha-pitta Ghana, varnya and medhya

Lauha bhasma visistha guna quoted by Rasatarangini, all types of 'Pittaja roga' situated in sakha and kostha will be effectively cured by judicious consumption of lauha bhasma. Dose ranges between quarter ratti (31mg) to two ratti (250mg) with powder of trikatu or triphala or haridra rasa.

A pharmacological property of lauha bhasma mentioned as it improves the quality of blood, improve eye sight, and promotes strength, virility, complexion and intellect. Also possesses astringent, haematinic and restorative properties.

Table no. 3 Properties of lauha bhasma

Sr. No.	Therapeutic utility
1.	Anaemia's (simple and secondary anaemia's associated with haemorrhages, malaria, kalazar, chlorosis)
2.	Bleeding piles and bright diseases
3.	Bronchitis and chronic intermittent fever
4.	Diarrhoea, gastric disorders and hyperacidity
5.	General debility, gonorrhoea and heart disease
6.	Hectic fever, and helminthiasis
7.	Leprosy and mental ailments
8.	Nephritis, splenic enlargement, nephritis and urinary disorders etc.

Abhraka bhasma² considered as rasayana is of different varieties in which Krishana Vajra Abhraka is selected for the therapeutic purposes. In classical texts of Ayurveda it is mentioned that its judicious use will cure all eight types of maharogas such as kustha (skin disorders), vata-vyadhi, ashmari (calculus), prameha (diabetes), udaroga, bhagandra (fistula in ano), arsha (haemorrhoids) and grahani roga (gastric disorders).

Table no. 4 Different types of Abhraka

Sr. no.	Ayurvedic name	Mica	Chemical composition	Chemical identification
1.	Krishna abhraka	Biotite	$H,K)_2, (Mg, Fe)_2, (Al, Fe)_2, (SiO_4)_3$	Black mica/ magnesium mica
2.	Pita abhraka	Lepidolite	$K Li [Al(OH)_2] Al(SiO_4)_3$	Ruby mica/ lithium
3.	Shaveta abhraka	Muscovite	$H_2KAl_3(SiO_4)_3$	White/potash mica
4.	Rakta abhraka	Phlogopite	$[HK(Mg_3) Mg_3 Al (SiO_4)_3$	Amber mica

Abhraka bhasma³ is good for kashaya (hair), provides good body complexion (varnya), appetizer (ruchikara), laxative and strengthening. It is good for eyes (netrya), improves intellect and encourages lactation. It provides stability, firmness in the body and also improves sexual desires. It overall improves reproductive capacity of humans.

Table no. 5 Pharmaco-therapeutic properties of Abhraka bhasma

Sr. No.	Properties	
1.	Rasa	Madhura
2.	Guna	Snigdha
3.	Veerya	Sheeta
4.	Vipaka	-
5.	Prabhava	Rasayana, deepana, pachana and stanya vriddhikara

Tamra bhasma⁴ has a long history its references can be traced from the literatures like in charaka samhita as a 'visha kanya'. With the evolution of rasashastra the metals was extensively studied, described and used for its therapeutic values. There are different varieties of tamra available; the one which possesses Snigdha guna, reddish in colour, highly malleable and ductile is considered as best variety of tamra.

Table no. 6 types of Tamra (Copper)

Sr. No.	Copper types	Extracted from	Quality
1.	Naipali tamra/ Naipalika tamra	Nepal	Srestha and grhaya (used for therapeutics)
2.	Mleccha tamra	Yavan desha (northwest tribes)	Kanistha and agrahya (therapeutically unfit)

Pharmacological properties of tamra bhasma claimed to have astringent, digestive, hemantonic and anti-aging properties. It is rarely used alone and mostly used in combination with many other herbal preparations. It is widely used in anaemia, arthritis, ascetics, asthma, bronchitis, chronic rhinitis, cough, inflammation, liver and spleen diseases, malabsorption syndrome, peptic ulcers, skin diseases including leprosy etc.

Table no.7 Properties of Tamra

Sr. No.	Properties	
1.	Rasa	Tikta, kashaya and madhura
2.	Guna	Sniigdha
3.	Veerya	Ushana
4.	Vipaka	Katu
5.	Prabhava	Rasayana, deepana, pachana and stanya vriddhikara

It is a good Agni deepaka (appetizer) and udrana krimi nashaka (antihelminthic). It cures all types of kostha roga, kasa, shwasa, pandu roga and yakrut-plihodara roga. It is considered as a potent medicine for antra shosa roga.

Mrigchram bhasma⁴ is made, by collecting the deer hide and subjected for intense heat to obtain ashes of it and used as medicinal purposes. In Ayurveda texts there is use of mrigshringa (Deer antlers) bhasma in many of the formulation. In Ayurveda text Rasendra sara sangraha it is mentioned as Mrigchram not Mrigshringa which can be difficult to assess which is to be used. In other conditions or disorders Mrigshringa is being used as a medicine purposes as it is having properties to cure Hardiya Shula, kasa and hikka roga etc. In modern point of view deer hide contains 60-65% of water, 30-35% of proteins (Collagen, keratin, Elastin, Reticulin), Lipids fats approx. 1-2%. Mineral and other trace elements are approx. 0.5%. There are many articles which refers deer skin⁵ as a source of high quality bioactive peptides enhanced calcium supplementation and potent Anti-oxidant capabilities.

The last ingredient Jambira nimbu its root bark is used for this formulation. It comes under amla varga. It helps in managing urinary calculus and kidney related disorders. It improves digestive strength and cures abdominal ailments.

Preparation of yakrudrari lauha:

1. All the ingredients are weighed to the required quantity.
2. They are then triturated to properly mix all the ingredients.
3. With help of Ghrita make 9 ratti (approx. 1.2gms) of vati.
4. Stored in airtight container for further use.

Indications: yakrut roga, pleehodara, kamla, halimaka, kasa, shwasa, jwara and vataja gulma.

Dose: 2-4 ratti (250 – 375mg)

IV. CONCLUSION

Yakrudrari Lauha is one of the most powerful classical Lauha Kalpanas, particularly suited for treating difficult cases of Ya krut and Plihodara. The synergism in the composition of the medicine can be explained by the critical evaluation of each ingredient. Its main metallic components, Lauha, Abhraka, and Tamra Bhasma, possess potent hematinic, hepatoprotective, and Srotoshodhaka effects, enabling its effective use in Kamala, Halimaka, and their respective systemic manifestations like Kasa, Shwasa, and Jwara.

The presence of such unique ingredients as Mrigacharma Bhasma and the root bark of Nimbuka (Citrus jambhiri) reflect the specificity of classical Ayurvedic pharmaceuticals to calm particular doshas and improve bioavailability. Whereas the importance of classical Ayurvedic literature in the treatment of diseases cannot be denied, scientific research is required to prove its efficacy. This paper presents a thorough pharmacological overview of Yakrudrari Lauha, providing sufficient grounds for further in-vivo trials.

V. DISCUSSION

The mechanism behind the pharmacological action of Yakrudrari Lauha is not the additive effects of its constituent herbs; rather, its therapeutic effect is due to its unique, very specific synergism. The action of Tamra Bhasma on alleviating biliary stasis (Pitta Saraka) as well as promoting fibrous tissue reduction (Lekhana) in the liver parenchyma and spleen parenchyma initiates an overall healing process. The action of Lauha Bhasma on restoring depleted tissues (Rakta Dhatu) from a deficiency due to the disease process, as well as correcting secondary anemia (Pandu) is valuable at this stage. The effects of Abhraka Bhasma on cellular regeneration serve to protect the liver from further oxidative damage through their actions on the hepatocytes. The use of acidic media, like Nimbu Swarasa, in the pharmaceutical processing (Bhavana) stages enhances the bioavailability of these metallic nanoparticles and initiates a direct stimulus (on Agni). Ultimately, the actions of Yakrudrari Lauha provide an integrated and comprehensive effect by removing the Srotorodha (obstruction), correcting Ranjaka Pitta disorders, and restoring both structural and functional integrity to the Yakrut and Pleeha.

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