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Review article

Different methods of *Shodhana* procedures of "*Vanga dhatu*" as per classics

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ABSTRACT:
Rasashastra is an ancient branch of Ayurveda that deals with the preparation, preservation and therapeutic use of metallic and mineral-based medicines known as Rasa dravyas, it includes the Processing of metals and minerals as well as their therapeutic applications. Most of the raw materials used in Rasashastra are obtained from earth & hence there is every chance of impurities, toxicities, heterogeneous qualities due to mixing with different substances is a common factor when the drugs are used by the humans then they are subjected to different suitable techniques & procedures such as shodhana, marana to eliminate their doshas and also to increase the potency. Shodhana carried out to eliminat of physical and chemical impurities, to change physicochemical properties, to remove toxicity, to increase the potency of the drug material, convert them to the pharmaceutically suitable form and induce desired qualities for further processing. Bhasmas are one of Ayurveda's most unique therapeutic preparations, and they've been used as effective drugs for centuries with no noticeable side effect. Vanga bhasma is one such preparation containing tin as a main ingredient. Vanga is mentioned in puti loha that is those metals which on heating releases bad smell. A detailed description of vanga dhatu for its Shodhana process along with general information will be reviewed in the present article.

KEY WORDS: Rasashastra, Ayurveda, Shodhan, Vanga Dhatu, Bhasma.

INTRODUCTION:

Rasashastra often referred to as the "Science of Marcury" which primarily deals with the elements Rasa (mercury) and Rasayanas (rejuvenators), with drugs classified into Maharasa, Uparasas, Lauhas, Ratnas, and other categories. Lauhas are one of these and they are classified as metals in modern science.

References to the medicinal use of Lauhas (metal) can be found in Vedic literature.

It means medicinal use of metals was well known to Hindu physician's right from the prevedic period. The Yajurveda described six types of metals: gold, silver, copper, iron, tin, and lead.

Metals in the field of medicine gained true status during the Samhita period. Their therapeutic use was limited, because of their inability to convert into a suitable pharmaceutical form that is fine powder.

However, after the development of well-defined Rasashastra processes, in their use in therapeutics increased.

Shodhana and marana are the two fundamental methods used for this purpose. Shodhana is the first and most essential method used by Ayurvedic physicians to remove toxicity from metals, potentiate them to obtain therapeutic perfection, and make them easily digestable, absorbable, and assimilable.

The Shodhana process described in Rasaliterature is not just a chemical purification procedure, but also a specific addition and separation process that causes physical, chemical, and biological changes in the metals.

Aims and Objectives

1. Literary review of Vanga Dhatu
2. Review of Shodhana procedures of Vanga dhatu as per classics.

Literary review of vanga dhatu:

Vernacular names

Hindi – Ranga
English – Tin
Lattin – Stannum

Ranga: means to colour. It's special compounds are used for colouring processes.

Vanga: a kind of metal which is obtained from "Vanga"desha (Bengal)

Synonyms: Vanga, Vangakam, Ranga, Rangakam, Sukraloha, Kurupya, Trapusa and Trapu

Types: 2 types – 1. Khuraka 2. Misraka.

Grahya Swaroopa:

Khuruka Vanga having the qualities like Dhavalam Mrudulam, Snigdham, Drutdravam, Sagauvaram, Nihshabdam.

1. Dhavalam : white
2. Mrudulam : soft, malleable on pressure.
3. Snigdham : smooth, without perceptible deformation
4. Drutdravam : having low melting point.
5. Sagauvaram : Heavy
6. Nihshabdam: melts without producing any sound.

Agrahya Swaroopa –

Mishraka Vanga is having the qualities like Dravate-atikathina, Ruksha, Anya dhatuvimishritam, Dhusaram, Kathina.

Rasa panchaka:

Rasa – Tikta,
Virya – Ushna/shita
Guna – Ruksha, laghu, teekshna
Vipaka – Katu

Doshagnata - Kaphahara,Pittahara

Karma – Chakshushya, Balya, Vrshya, Deepana, Pachana, Vranahara, Kasa-Shwasahar

Vyadhi prabhava – Kasa, Shwasa, Prameha, Kapha roga, Pandu, Krimiroga, Shweta paradara, Sukrakshaya, Mutrakriccha, Vrana, Medodosha, Kshaya roga, Agnimandya, Garbasyachyuti etc

Varna (Color) – Khuraka vanga- Dhavala (white), Mishraka Vanga- Dhusaram (Blackish white)

Physical properties:

Vanga (Tin), a soft and easily fusible white lustureous metal, which is notably crystalline, in Group 14(IVa) of the periodic table.

As met within market tin is a bright white metal, silver silver like, softer than gold, harder than lead.

Atomic number	- 50
Atomic weight	- 118.69
Melting point	- 231.9 °C
Boiling point	- 2507 °C
Hardness	- 6.7 (4545 F)
Specific gravity	- 7.3

Review of shodhana procedures of vanga dhatu as per classics:

The Aushdha Kalpana is prepared by different pharmaceutical processing techniques applied to raw drugs to get the desired therapeutic effect. These processes are known as samskaras. Among them Shodhana is one such very important pharmaceutical procedure.

Definition-

उद्दिष्टैरौषधैः सार्द्धं क्रियते पेषणादिकम् ।I
मलविच्छित्तये यत्तु शोधनं तदिहोच्यते ॥ ५२ ।। र.त.

Shodhana is procedure of removal of impurities from Rasadravya or Dhatu etc. by using pharmaceutical procedures like Mardana, Kshalana, or Nirvapana etc. with various different Dravyas mentioned in Granthas.

Most of the raw material used in Rasashastra are obtained from earth crust and hence there is every chance of impurities, toxicities, heterogeneous qualities due to mixing with different factors. Thus, Shodhana is important process where toxic and unwanted properties of drug are removed and additional properties are seen along with changes in physical, chemical & biological properties. It makes the substance nontoxic, easily absorbable, assumable, more potent and more effective therapeutically. Method adopted and the media used are two important factors which makes changes in properties due to Shodhana.

Types of Shodhana-

It is of two types

a) Samanya Shodhana
b) Vishesha Shodhana

a) Samanya Shodhana-

It is common procedure used for drugs of a particular group where the drugs of a particular group are subjected to the similar procedure through individually. It is applied for the drugs which are come into one category like Maharasa, Uparasa, Ratna, Dhatu.

b) Vishesh Shodhana-

It is specialized technique or procedure employed for a single particular drug individually. It is specifically app lied for the drugs which contain high concentrated chemicals. Each drug of the group may have different types of impurities which are vary from substances to substances and are removed by vishesh shodhana.

Above both procedures are further classified into Saagni and Niragni.

Saagni- Nirvapa, Dhalana, Bharjana, Puta, Swedana, etc.

Niragni- Bhavana, Prakshalana, Shoshana, Sinchana, Nimmajana, Gharshana etc.

Shodhana of Vanga Dhatu-

Shodhana has been defined as the process by which physical and chemical impurities get separated by treatment with various drugs. Cu, Ag, Zn, Pb, Sb and Bi are the common impurities in Ashudha Vanga dhatu. These impurities are removed to some extend by Shodhana. Removal of zinc and lead from the raw vanga shows the importance of Malavicchedana property of Shodhana.

Different drugs and their Kalpas have been mentioned for Shodhana of Vanga in different Rasa classics.

Samanya Shodhana-

The most common method of Samanya Shodhana is to heat and quench Dhatus in taila (sesame oil), Takra (buttermilk), Gomutra (cowurine), Aranala (sour gruel), and Kulattha Kwatha (decoction of seeds of Dolichos biflorus Linn.) seven times in each.

Samanya Shodhana of Vanga dhatu is the general method of Shodhana for the Loha Varga. In various classics, there are multiple references to Samanya (general) Shodhana of Dhatus (metals). The methods are listed below:

Table No. 1: Samanya Shodhana of Vanga dhatu in different classical texts

Sr. No.	Reference	Procedure	Drug used	Repetition
1.	Rasa Tarangini	Nirvapana/ Dhalana	Kanji, Takra, Kulattha Kwatha, Gomutra, Taila	3 times
2	Rasa Tarangini	Nirvapana/ Dhalana	Rambhamulajala (Kadalimul swaras)	7 times
3	Rasa Ratna Samucchaya	Nirvapana/ Dhalana	Taila, Takra, Gomutra, Kanji, Kulattha Kwatha	7 times
4	Ayurveda Prakasha	Nirvapana/ Dhalana	Taila, Takra, Gomutra, Kanji, Kulattha kwatha	7 times
5	Ayurveda Prakasha	Nirvapana/ Dhalana	Kadalimul swaras	7 times
6	Rasendra Chintamani	Nirvapana/ Dhalana	Kadalimul swaras	7 times
7	Rasaratnakara	Nirvapana/ Dhalana	Taila, Takra, Gomutra, Kanji, Arkakshira, Kulattha Kwatha, Jambirarasa	7 times
8	Rasapaddhati	Nirvapana/ Dhalana	Takra, Kanji, Gomutra, Taila, Kulattha Kwatha	21 times
9	Rasendra Mangala	Bhavana	Jambira, Karkoti, Shringi	-----

Vishesha Shodhana-

Most Acharya believe that it is necessary to subject it to Vishesha Shodhana even after Samanya Shodhana to reduce toxicity and increase potency.

Table No. 2: Vishesha Shodhana of Vanga dhatu in different classical texts

Sr. No.	Reference	Procedure	Drug used	Repetition
1	Rasendra Mangala	Dhalana	Arka-dugdha	3 times
2	Rasa Tarangini	Dhalana	Churnodaka Arka-dugdha Nirgundi Swarasa+Haridra Churna Amla Takra/Kumari Swarasa	7 times 7 times 3 times 3 times
3	Rasa RatnaSamucchaya	Dhalana	For Khuraka – Nirgundi Swarasa +Haridra Churna	3 times
4	Rasendra chudamani	Dhalana	For Khuraka – Nirgundi Swarasa + Haridra churna	3 times
			For Mishraka – Amla takra+Punarnava Kwatha + Vatsanabha + Nirgundi then Katukalabu Swarasa	3 or 7times 3 or 7times
5	Ananda kanda	Dhalana	For Khuraka – Nirgundi Swarasa + Haridra churna	3 times
			For Mishraka – Amla takra+Punarnava Kwatha + Vatsanabha + Nirgundi /Katukalabu Swarasa	
6	Rasendra Chintamani	Dhalana	Arka dugdha	7 times
7	Rasa Manjari	Dhalana	Arka dugdha	3 times
8	Rasendra Sara Sangraha	Dhalana Swedan-1/2 yama	Arka-dugdha / Churnodaka	3 times

Sr. No.	Reference	Procedure	Drug used	Repetition
9	Ayurveda Prakasha	Dhalana	Arka-dugdha	7 times
10	BrihatRasaRajaSundara	Dhalana	Mutra varga + Amla varga + Ksharajala + Arkadugdha + Snuhidugdha	7 times
			Nirgundi Swarasa + Haridra Churna	
11	Rasa Jala Nidhi	Dhalana	Nirgundi Swarasa + Haridra Churna Or Punarnava Kwatha + Vishtinduka + Katukalabu Rasa + Amla takra	3 times
		Lepana & Atapa Shushkikarana	Juice of Ghosha/Nirgundi rasa+ Nirgundi mula Churna	7 times
		Dhalana Prakshalana	Mutravarga, Amlavarga , Ksharajala, Ark dugdha , Snuhi dugdha, Kadam-ba Patra decoction	_
		Swedana ½ Yama	Churnodaka	_

DISCUSSION:

Repeated heating followed by quenching in various liquid media is the basic process for Shodhana of metals. Heating and cooling repeatedly disrupts the equilibrium between molecules, lowering hardness, increasing brittleness and reducing metal particle size.

Acharyas modified the order of quenching, therefore the cause for the specific sequence is unknown.

The whole procedure of Shodhana can be elaborated well according to one quotation from Rasarnava which is

सर्वे मलहराः 'क्षाराः सर्वे च अम्लाः प्रबोधकाः।

'विषाणि' च तमोघ्नानी 'स्नेहा' मार्दवकारकाः ।। 5/43 रसार्णव

According to above Shloka Kshar media plays important role in Malaharan. Whereas Amla media is important for Prabodhana that is promoter for further chemical changes. Visha Dravya used for Shodhana helps in Dosha Nirharan. Sneha media is useful for Mrudukaran that is smoothening of metals.

Til tail is slightly acidic and Sukshma Ashukari in Guna. After quenching it rapidly enters into Vanga dhatu and makes film coating. Further heating causes compound formation and breaking of material.

Takra is acidic in nature and tikshna shaithilikaran in Guna used for Samanya Shodhana of Vanga. As Vanga Bhasma was meant to use on Madhumeha which is Meda and Kaphapradhana Vataja disorder, butter was separated from Takra, to impart Ruksha quality to Vanga dhatu via Samskara (Dhalana).

Arnal and Kanji are used as synonyms and Guna is Tikshna Shaithilikaran. Repeated heating and quenching of Vanga dhatu in Kanji acts as a softening and breaking agent for Vanga dhatu.

Gomutra is slightly basic in nature and Guna is Dahana, Pachana. According to its properties, it separates oxides from material and also eliminates undesired substances from Vanga dhatu. After dhalana in Gomutra, majority of Vanga is converted in to powder form. This is due to the formation of Tin dioxide, which quickens the further process of Jarana and Marana.

Kulattha Kwatha is basic medium and used for Samanya Shodhana of Vanga.It may impart Tikshna and Bhedana property to Vanga, which in turn may break the Samprapti of the different disease. Liquid media can also impart qualities like Sukshma and others that improve Bhasma quality. The physical and chemical properties of Vanga may change as a result of intense heating and sudden dipping, making it suitable for Bhasma formation.

Churnodaka is an alkaline medium and used for Vishesha Shodhana of Vanga. churnodaka is kaphahara in guna, and it may impart its Kaphahara property to Vanga, which may aid in the regulation of the disease.

Nirgundi Patra having property of Tikta, Kashaya Rasa, Vatashleshmahara & Haridra having Katu-Tikta Rasa, Ruksha Guna, Ushana Virya, Mehahara properties which may be added into Vanga by Samskara & after Bhasma preparation some entity remains which helps in disease condition like Madhumeha.

According to work done on Bhasmikaran of Vanga Dhatu melting point of Vanga found to be slightly increased. During melting and quenching, Vanga Dhatu parts (Sno2) got converted into powder form. This powdered Vanga absorbs the liquid media. A layer of liquid media formed around the metallic vanga. When this Vanga is heated again, the liquid media evaporates first, causing a temperature rise delay.

S-adenosyl-l-methionine is one of the many important substrates which can found in all 5 dravyas of Samanya Shodhana. It provides an edge on the chelating of these metals making them bio friendly.

CONCLUSION:

When a drug is consumed in its raw form, it contains impurities and toxicity that can cause a negative impact on the patient's health. Shodhana not only removes impurities, but it also boosts the drug's therapeutic potency. The media which used in the Shodhana process plays a critical role in breaking down or destroying chemical constituents that aren't needed and transform hard metal into a soft, brittle, ductile. Physically Shodhana is the beginning of conversion of metal particles into nanoparticles. Hence after Vanga Shodhana in tila tail, takra, gomutra, kulattha kwatha, churnodaka, haridra churna + nirgundi swarasa, etc removes impurities, detoxification, alter physical properties such as color, texture and brittleness, making it more sutible for further processing like Marana(incineration), enhance bioavailabilty and medicinal efficacy of Vanga by improving its absorption in the body.

REFERENCES:

[1] Shastri Kashinath. Hindi Commentary. Rasa Tarangini of Sadananda Sharma: Chapter 18/1: Varanasi:Motilal Banarasi Das, 2012; 43
[2] Tripathi Indradev. Ed. Rasa Ratna Samucchaya of Vagbhata: Chapter 5/153: Varanasi: Chowkambha Sanskrit Bhavan, 2012; 68.
[3] Tripathi Indradev. Ed. Rasa Ratna Samucchaya of Vagbhata: Chapter 5/154: Varanasi: Chowkambha Sanskrit Bhavan, 2012; 68
[4] Shastri Kashinath. Hindi Commentary. Rasa Tarangini of Sadananda Sharma: Chapter 18/4: Varanasi:Motilal Banarasi Das., 2012; 436
[5] Mishra Siddhinanda.Hindi commentary. Rasendra chudamani of Somadeva: Chapter14/134: Varanasi: Chowkambha Orientala, 2004; 265.
[6] Mishra Gulraj Sharma. Ed. Ayurveda prakasha of Madhava: Chapter 3/152: Varanasi: Chowkambha Sanskrit Series, 2007; 374.
[7] Shastri Kashinath. Hindi Commentary. Rasa Tarangini of Sadananda Sharma: Chapter 18/39: Varanasi: Motilal Banarasi Das., 2012; 443
[8] Ayurvedic Formulary of India, Vanga bhasma, Department of AYUSH, Ministry of Health and Family welfare.2nd edition, Part 1: Government of india, 2003; 244
[9] Tripathi Indradev. Ed. Rasa Ratna Samucchaya of Vagbhata: Chapter 5/154: Varanasi: Chowkambha Sanskrit Bhavan, 2012; 68.
[10] Gereral & Inorganic chemistry, Vol. 2, P.no. 399
[11] Sadanand Sharma, Rasatarangini, Paribhashavigyaniya Adhyaya, 2/52, commentary by Pandit Kashinath Shastri. 11th ed. Motilal Banarasidas Publication, Delhi, 1979; pp22.
[12] Yogaratnakara, Lakshmipati Shastri, Vidyotini Hindi Commentary, Chaukhamba Sanskrit Sansthan, Varanasi, 2005.
[13] Rasaratna Samuchchaya, edited by D. A. Kulkarni, Meharchanda Lakshmandas Publication, New Delhi, 5/13 pp 93.
[14] Rasarnava, Rasachandrika Hindi commentary by Indradeo Tripathi, Choukhamba Sanskrita Series, Varanasi, 6th edition, 5/43, pp 62

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