



Review Article

www.ijrap.net

(ISSN Online:2229-3566, ISSN Print:2277-4343)



CONCEPT OF SHODHANA IN AYURVEDIC PHARMACEUTICS: A REVIEW

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Received on: 17/07/22 Accepted on: 05/08/22

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DOI: 10.7897/2277-4343.1305142

ABSTRACT

Rasaushadhis (herbomineral preparations) are a treasure in Ayurveda. They assure fast recovery of diseases as compared with plant-based medicine. These medicines require lengthy processing before conversion into admissible forms. The processes like Shodhana (purification), Marana (incineration), Amrutikarana (nectarization), Bhasmikarana, Satwapatana etc., are adopted to achieve this. Before the metals and minerals are used for therapeutic benefit, it is necessary to eliminate all the physical, chemical, and toxic impurities. Shodhana is the first and most crucial procedure adopted to achieve this. References from Rasashastra textbooks like Rasa Ratna Samuchaya (RRS), Rasa Tarangini (RT), and Ayurveda prakasha (AP) are reviewed and incorporated in this article. Various methods like Nirvapa, Swedana, Pachana, Bhavana, Dhalana, Nimajjana, etc., are adopted for shodhana. These methods are done with the help of instruments like Dolayantra, Swedani Yantra, Lohadarvi (iron spoon), Vanka Nala etc. Various media like Kanji, Takra, Aranala, Gomutra etc., are used depending on the nature of the materials. Shodhana removes the physical and chemical impurities and potentiates the drug's efficacy, which, in turn, reduces the side effect of the drug. Shodhana also impregnates organic materials and their properties into inorganic drugs to facilitate their utilization by the body.

Keywords: Pharmaceutical, Purification, Shodhana

INTRODUCTION

Rasa shastra is developed for achieving dhatu vada (transformation of lower metals into higher metals like gold and silver) and deha vada (transformation of the body to a healthy state by using mercury and other metals and minerals). Thus, Rasashastra became an important branch of Ayurveda that specialized in exploiting medicinal uses of metals, non-metals, minerals, and poisonous drugs with herbs. The metals and non-metals present in the universe are in various forms. They will differ depending on their hardness, impurities, availability, property, etc. These metals and minerals are not in an absorbable form, and few are toxic if consumed. Hence, they must be converted into an absorbable, safe form for clinical usage. Therefore, to achieve this goal, various transformative measures like Shodhana, Marana, Jarana, Satwapatana, Bhasmikarana etc., are adopted¹. To achieve dehavada, Shodhana is the first and foremost technique (Shodhana samskara). Shodhana purifies both physical and chemical impurities. After the shodhana procedure, the drug is further subjected to various methods, such as Marana, etc., to attain the dehasiddhi. Hence to make use of these for therapeutic purposes, Shodhana is necessary.

In the context of Rasashastra, the term 'Shodhana' refers to the purification of metals, minerals or toxic substances that are to be used for therapeutic benefit. It can be classified into two major categories as samanya and vishesha Shodhana². Samanya Shodhana (General) is a purificatory procedure for a group of drugs like Maharasa, Uparasa, Ratna, and Dhatu. E.g., for the samanya Shodhana of parada, bhavana with garlic paste and saindava lavana till it attains black colour and finally, the mixture is washed with water³. Vishesha Shodhana is a unique method carried out to purify individual drugs.

Both the above procedures are further classified into Saagni and Niragni. Saagni Shodhana means it is performed by utilisation of fire. Eg. Nirvapa, Dhalana, Bharjana, Puta, Swedana, Patana etc. In Niragni Shodhana, there is no role of fire/heat. E.g., Bhavana, Prakshalana, Shoshana, Sinchana, Nimajjana, Gharshana etc.

In this work, classical texts like Rasa Ratna Samuchaya (RRS), Rasa Tarangini (RT), Ayurveda prakasha (AP) etc., are referred for search for various methods of Shodhana procedures. They are presented in table form. Table [1-10] Instruments like dolayantra, swedani yantra, lohadarvi (iron spoon), and vanka nala are incorporated. Later they are again analysed based on the methods and ingredients used for Shodhana to bring a comprehensive picture of Shodhana of all Rasa dravyas.

Table 1: Method of shodhana⁴

Procedure	Meaning
Swedana	Steaming the drugs in any liquid media
Mardana	Triturating the drug with (swarasa /kashaya/godugda/gomutra) less quantity
Bhavana	Triturating the drug with (swarasa /kashaya/godugda/gomutra) by completely immersing.
Patina	heating the substances so that it vaporizes, and the extract is collected
Avapa/ dhalana	Melting solid raw drug and dipping in cold liquid
Nirvapa	Heating the drugs and immersing in cold liquids
Galena	Filtration
Prakshalana	To clean or proper washing
Nimajjan	Dipping the drug in any liquid media
Bharjana	De hydrate /frying
Pachana	Shodhya dravya immersed in shodhana dravya and keeping on fire

Table 2: Shodhana of maharasa^{5,6}

Name	Method	Ingredients and Procedure (Reference)
Abhraka	Nirvapa	In kanjika/gomutra/triphala decoction/milk for 7 times (RRS)
	Nirvapa	In the decoction of badari (<i>Ziziphus mauritiana</i>) (RT)
Vaikranta	Swedana	Amla dravyas (Kanjika)/ urine/ kulatha decoction/kodrava/ juice of banana stem (kadali Kanda swarasa) along with panchalavana, yavakshara, and tankana for 3 days (RRS)
Makshika	Pachana	Boiling with Castor oil and matulunga swarasa/ Kadali kanda juice for 2 hours
	Nirvapa	Nirvapa with Triphala decoction 7 times (RRS)
Vimala	Swedana	With aadarooshaka jala /jambira swarasa/mesha sringi Swarasa (RRS)
Shilajatu	Dhouta	Washing with kshara/amla/gojala (RRS)
	Nimajjana	Soaking in milk/Triphala kwatha/bringaraja swarasa (RRS)
	Swedana	Swedana in swedani yantra with yava kshara and guggulu, Kanji as liquid media for 3 hours (RRS)
	Nimajjana	Shilajatu +2 parts of hot water+half part of Triphala kwatha; this mixture is placed under the hot sun and filtered later (RT)
Sasayaka	Bhavana and Pachana	With rakta varga dravyas 7 times and boiling with sneha varga drugs. (RRS)
	Swedana	Swedana with go/mahisha/aja mutra for 3hrs (RRS)
	Bhavana	Nimbu swarasa bhavana for 6 hours
		seven bhavana with rakta chandana swarasa and manjishta kwatha seven times any amla dravyas (RT)
Chapala	Bhavana	With jambira nimbu swarasa/karkotaka swarasa/ardraka swarasa 3 times (RRS)
		With jambira nimbu swarasa/karkotaka swarasa/ardraka swarasa 3 times (RT)
Rasaka	Pachana	With katuka alabu juice
	Nirvapa	With bijapura juice /butter milk/horse urine/human urine (RRS)
	Nimajjana	Immersed in human urine for 1 month (RRS)
	Bhavana	Bhavana with nimbu swarasa 7 times (RT)
	Nirvapa	Nirvapa with takra or kanji (RT)

Table 3: Shodhana of uparasa⁷⁻⁹

Name	Procedure	Ingredients and Procedure (Reference)
Gandhaka	Dhalana and Swedana	Gandaka is melted with ghee and poured into milk/Bringaraja Swarasa (3-7 Times). Then it is cooked for 1 Ghati (24 min) (RRS)
	Urdhvapatana	Damaru Yantra (RT)
	Dhalana	Gandaka is melted with ghee and poured into milk
	Swedana	Swedani Yantra with milk (RT)
Gairika	Bhavana	Bhavana with Milk (RRS)
	Barjana	With ghee (RRS)
	Barjana	Barjana with ghee (RT)
Kasisa	Nimajjana	With bringa raja swarasa/pitta of animals /menstrual blood (RRS)
	Swedana	Dola yantra swedana with bringa raja Swarasa (AP)
Sphatika	Nimajjana	With Kanji for 3 days (RRS)
	Bharjana	Bharjana (AP)
Haratala	Swedana	With Kushmanda swarasa/ Tila kshara jala/ churnodaka/ Aranala (RRS)
	Swedana	Dola yantra swedana with haratala and tankana in jambira swarasa and Kanji. (RRS)
Manashila	Bhavana	With agastya leaves/ginger juice (RRS)
	Swedana	With Jayanti/Bringaraja/goat urine 3 hours and washed with Kanji. (RRS)
	Nimajjana	Nimajjana with lime water (RT)
	Swedana	Dolayantra swedana with jayanti/bringaraja swarasa (RT)
Anjana	Bhavana	With surya vartadi yoga dravya/bringaraja swarasa
		Bhavana with Triphala kwatha/Bringaraja swarasa (RT)
		Jambira Swarasa Bhavana for 1 day (AP)
Swedana	Dola yantra swedana with triphala kwatha (AP)	
Kankushta	Bhavana	With nimbu Swarasa (RRS)

Table 4: Shodhana of sadarana rasa^{10,11}

Name	Method	Ingredients and Procedure (Reference)
Kampillaka	Plavana	It is immersed in water, and pure kampillaka floats ¹²
Gouripashana	Swedana	The bigger size of Karavallaka is taken, and Gouri pashana is kept inside it. Dola yantra swedana is done with karavallaka swarasa for one yama. (RRS)
		The bigger size of Karavallaka is taken, and Gouri pashana is kept inside it. Dola yantra swedana is done with karavallaka swarasa for one yama. (RT)
		Dola yantra swedana with tankana jala or Milk. (RT)
Navasagara		It is placed on a steel vessel with 3 parts of water and stirred well. The filtrate is now taken out and boiled to evaporate the water. (RT)
Varatika	Swedana	With Kanji (RRS)
	Swedana	With Amla dravya like Nimbu rasa /Kanji/Kulatha kwatha. (RT)
Hingula	Bhavana	With Ardraka swarasa/Lakucha/Amla varga/Mesha sringi dugda. (RRS)
		With Ardraka swarasa/Nimbu Swarasa. (RT)
		With Sheep's milk and then 7 times Bhavana with Ardraka swarasa (AP) ¹³
Mrudgara Sringa	Bhavana	With Shudha Jala for 15 days (RT)

Table 5: Shodhana of ratna¹⁴

Name	Method	Ingredients and Procedure (Reference)
Manikya	Swedana	With Nimbu Swarasa for one yama. (RT)
Mukta	Swedana	With jayanti swarasa/Agastya patra swarasa for one yama. (RT)
Pravala	Swedana	With jayanti swarasa/sarja kshara jala/tanduliya jala for one yama. (RT)
Tarkasya	Swedana	With milk. (RT)
Pushparaga	Swedana	With kulatha kwatha/Kanji for one yama (RT)
Vajra	Swedana	With kulatha kwatha/Kodrava (RRS)
		With kulatha kwatha for 3 days. (RT)
		with snuhiksheera for 100 times. (RT)
	Nirvapa	With kulatha kwatha/ Kodrava on intense fire for 3 days (AP) ¹⁵
Nilamani	Swedana	With Neeli swarasa (<i>Indigofera tinctoria</i>) (RT)
Gomeda	Swedana	With Nimbu Swarasa. (RT)
Vaidurya	Swedana	With Triphala kwatha. (RT)

Table 6: Shodhana of uparatna^{16,17}

Name	Method	Ingredients and Procedure (Reference)
Vaikranta	Swedana	Amla dravyas (Kanji)/ Urine/ Kulatha decoction/ Kodrava/ Kadali kanda swarasa (juice of banana stem) for 3 days (RRS)
Rajavarta	Swedana	With lime juice+ Cows urine+ Yavakshara. (RRS)
		Shirisha flower and ginger juice. (RRS)
		Equal quantity of Cows urine, Nimbu swarasa, yava kshara. (RT)
		shirisha flower juice for one yama (RT)
Sphatikamani	Swedana	Equal quantity of Cows urine, Nimbu swarasa, yavakshara. (RT)
		shirisha flower juice for one yama (RT)
Perojaka	Swedana	Equal quantity of Cows urine, Nimbu swarasa, yavakshara. (RT)
		shirisha flower juice for one yama. (RT)
Vyomasma	Nirvapa	In Arjuna twak kwatha for 21 times. ¹⁸

Table 7: Shodhana of loha^{19,20}

Name	Method	Ingredients and Procedure (Reference)
Swarna	Putra	Dried cow dung cakes and saindava lavana are made by Bhavana with nimbu swarasa, which is applied over thin foils of swarna and dried in the sun. This is then subjected to sarava, and kukkuta putra is given. (RT)
		Pancha mritika is done bhavana with nimbu swarasa. This paste is smeared in Swarna foils and is subjected to Kapota putra in a sharava 7 times (RT)
Rajata	Nirvapa	With gomutra/takra/tilataila/aranala/kulatha (RRS)
		In a Musha, equal quantities of Rajata and Naga are melted, and Tankana is added. This liquid is then poured into Jyotismati oil 3 times. (RRS)
		Round palika (Ladle) is prepared with the help of paste of Ash and Lime. Equal quantities of Naga and Rajata are put into the ladle and are heated till the Naga is completely burned (RRS)
		With Agastya patra swarasa for 3 times. (RT)
		With the help of a blower, the thin sheets of Rajata are kept above the charcoal and heated, dipped in Nimbu swarasa. (RT)
		In an Iron vessel, cow dung ash is placed, and a pit is created. To this pit, foils of rajata with equal quantity of Naga are kept, heated, and melted. After melting, tankana is added to it. The naga present in the mixture is completely lost in the form of fumes. When all the fumes subside, the rajata is collected. (RT)
Tamra	Nirvapa	Tamra is grounded with kshara and amla dravyas. It is kept in a musha. It is then mixed with Gairika and is poured into buttermilk and dung of buffalo 7 times. (RRS)
		Saindava lavana is triturated with lemon juice/Nirgundi juice and is smeared over tamra patra. It is then heated and dipped in Souviraka 8 times. (RRS)

	Pachana	Boiled in gomutra for 3 hours. (RRS)
		In a mud pot, tamara patra and saindava lavana is taken, and Kanji/ gomutra is filled up to the brim. The pot is placed over the fire and boiled for one day. (RT)
		Paste of triksara/ panchakshara/ ashtakshara is triturated with Kanji, smeared over the tamra part, and dried. Later nirvapa is done with takra and kulatha kwatha (RT)
Loha	Nirvapa	With Rabbit blood/ triphala kwatha/chincha patra kwatha/triphala kwatha and gomutra (RRS)
		With banana stem juice/ triphala kwatha and gomutra in equal ratio for 7 times (RT)
Mandura	Nirvapa	Mandura is red hotted with charcoal of vibhitaki and dipped in gomutra (RRS)
		Triphala kwatha prepared with gomutra. (RRS)
		Mandura is red hotted with charcoal of vibhitaki and dipped in gomutra. (RT)
Vanga	Dhalana	In nirgundi swarasa and haridra powder for 3 times (RRS)
		In butter milk mixed with powder of punarnava and kuchala/katphala Kashaya (RRS)
		In nirgundi swarasa/arkaa dugda/takra/ nirgundi swarasa containing haridra churna. (RT)
Naga	Dhalana	nirgundi swarasa containing nirgundi root and seed of harenu and haridra
		In nirgundi swarasa/churnodaka. (RT)
Yasada	Dhalana	In nirgundi swarasa/ churnodaka/ Cow's milk/ snuhikshira for 21 times. (RT)
Pittala	Nirvapa	With nirgundi swarasa and haridra churna for 5 times (RRS)
		With nirgundi swarasa. (RT)
Kamsya	Nirvapa	With gomutra (RRS)
		With gomutra and saindavalavana. (RT)
Vartaloha	Nirvapa	With Goats urine/Horse urine for 7 times (RRS)

Table 8: Shodhana of sudha varga/sukla varga²¹

Name	Method	Ingredients and Procedure (Reference)
Shankha	Swedana	With Jambira nimbu swarasa for 4 yama. (RT)
		Jayanti swarasa/tanduliya swarasa/Kanji for one yama. (RT)
Sambuka/Ksudra Shankha	Swedana	Boiled with nimbu rasa or any amla dravya. (RT)
Khatika	Prakshalana	The powder of khatika is taken in a clean steel plate, washed, macerated and filtered. The wet powder is dried and stored (RT)
Godanti(Gypsum)	Swedana	With nimbu swarasa/drona pushpi Swarasa (RT)
Samudraphena	Bhavana	nimbu Swarasa (RT)
Kukkutanda Twak		It is soaked in sour or salty liquids for 3 to 4 hours. The inner sheets of the shell are removed and dried in the sun ²²

Table 9: Shodhana of kshara varga²³

Name	Method	Ingredients and Procedure (Reference)
Tankana kshara	Nirmalinikarna	1 part of Tankana is diluted with 24 parts of water, and the filtrate is later placed on mild fire and evaporated. Later it is dried and stored. (RT). In an iron vessel, Tankana is heated till the moisture content completely loses. (RT)
	Nirjalikarana	

Table 10: Shodhana of visha and upa visha varga²⁴

Name	Method	Ingredients and Procedure (Reference)
Vatsanaba	Nimajjana	With Gomutra/ Aja Dugda (RT)
Vishatinduka beeja	Nimajjana	in Kanji (RT)
	Bharjana	with ghee till it becomes reddish yellow (RT)
	Swedana	with godugda (RT)
Ahiphena	Bhavana	With ardraka swarasa 7 times (RT)
Jayapala	Swedana	with godugda (RT)
Datura	Swedana	with godugda/gomutra (RT)
Vijaya	Swedana	With babbula kwatha (RT)
Gunja	Swedana	With godugda/Kanji (RT)
Langali	Nimajjana	Cows urine for 1 day (RT)

DISCUSSION

Shodhana is an important concept, as well as procedure, explained in Rasa Shastra. It is the first procedure adopted for converting metal, mineral and poisonous substances into safe, suitable, absorbable and acceptable forms for therapeutic usage. The literal meaning of Shodhana is purification. But this is not merely chemical or physical purification. It is aimed at bringing desired properties and removing undesired properties in Rasa dravyas and converting them to suitable for subsequent processing meant for therapeutic administration. Interestingly, multiple procedures [Table 1] were adopted for doing so. It is also interesting that different media has been mentioned for various drugs in classics. It is furthermore drug specific.²⁵

Drugs which may have low vaporization points are subjected to Urdhva Patana (Sublimation and Distillation), Parada, Gandhaka, Navasadara etc. drugs are purified in this way. Shodhana of all Dhatus (except Puti Lohas), Abhraka and Makshika like minerals and Vajra is done with the Nirvapa method. Quenching after heating red hot helps in the conversion of material into brittle and easily grindable, which facilitates further processing²⁶. Bharjana (Frying) This is applicable in cases of drugs that either contain water or volatile substance such as spatika, tankana swarna-makshika etc. In this process, constant stirring of the material is done till the water of crystallization evaporates, and the material becomes puffed or till the added liquid is evaporated and the material is converted into the red. Here also, the moisture content is lost, and the material becomes light and puffed.

Swedana (Fomenting or Boiling with Liquids) This standard purification method applies to many drugs. Here, the drug can remain in contact with boiling liquid for at least three hours. This also helps accelerate the soluble impurities to go into the solution of boiling liquid. This method applies in Mercury, Haratala, Manashila, Sankha, Sukti, Varata, Mukta, Pravala and a few precious stones. In some cases, this method removes soluble impurities and, in some cases, external contaminants. The swedana procedure removes the external impurities, and the drugs become brittle. The filtration technique helps in the separation of adulterants and heterogeneous particles.

Bhavana (trituration of the drug in any liquid media) is used in cases of drugs which are soft, such as Mercury, Kasisa, Gairika, Hingula, Manashila etc. Bhavana enhances the synergetic action by increasing the concentration of chemical constituents of the drug. When manashila was subjected to bhavana with ardraka swarasa, bijapura swarasa, and agastya swarasa, it was noted that there was an increase in weight due to the addition of herbal juices into it; the pH value varied from 3.1 to 7.3. Also, the specific gravity of manashila was more or less equal to water. A significant reduction in particle size was noted²⁷. Nimajjana (Soaking in the Liquids) method is applicable for Vatsnabha, Ahiphena, Gunja etc. and Shilajatu. In this process, the drugs are soaked into the liquids such as Gomutra, Kanji etc. for at least three days, i.e. allowing sufficient time for the drug to remain in contact with purifying liquid, to let its soluble poisonous matters go into the liquid (solution) and making the drug purified. By immersing the drug in various media for a particular time, chemical changes from higher to lower concentrations occur.

Sikata Varga (Silica containing group) and its classification are not explained in medieval, classical texts. Authors of the 20th cent. have grouped under siktavarga. Badrasma (rock fossil), kouseyasma (asbestos), dugdapashana (talca), nagapashana (serpentine) sikta (sand) come under this group. As the sand particles are collected from river streams they exist in pure form. For the Shodhana of badrashma, radish juice is triturated seven times²⁸.

Gomutra is considered the best in the vatsnabha purification as it indicates less pathological effect. The treatments of sulphur with ghee and milk have been recognized as detoxicating agents and are likely to reduce their toxicity to a certain extent. Hence, it is good to admit Shodhana for safety and efficacy.

The media used in the process of Shodhana has an essential role in either breaking down or destroying the chemical constituent that is not required. It reduces the particle size of the drug and also softens the drug. Different processes are adopted depending on the nature of the drug, chemical composition, impurities and physical properties. E.g. Sudha Varga dravyas, when treated with acidic media, all the impurities get nullified. By this technique, we can infer that to purify the calcium compounds; they can be treated in acidic media.

If consumed after improper purification (Asuddha), many ailments like chardi (vomiting), Atisara (diarrhoea), Twak vikara (skin disorders), Jwara (fever), Ashmari (renal calculi), Hridroga (heart disease), etc. are mentioned in classics. Therefore, the Shodhana process enhances the potency and efficacy of the drug. Hence, drug act as nectar only after proper purification.

CONCLUSION

Shodhana is an essential process in Rasa Shastra; different methods like Nirvapa, Swedana, Bhavana, Bharjana, Nimajjana etc., are adopted based on the properties of the drug and its

impurities. These processes bring physical and chemical changes in drugs. Without Shodhana, if the medicine is consumed, it causes illness. Hence, Shodhana is indispensable; without shodhana, the drug cannot be converted into a safe, effective, absorbable form. Shodhana helps in removing unwanted toxic properties of drugs and imparts desired properties. This proves that shodhana is inevitable in pharmaceutical preparation.

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Cite this article as:

Shamja C. Shamsudheen *et al.* Concept of shodhana in Ayurvedic pharmaceuticals: A Review. Int. J. Res. Ayurveda Pharm. 2022;13(5):137-142
<http://dx.doi.org/10.7897/2277-4343.1305142>

Source of support: Nil, Conflict of interest: None Declared

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