



Research Article

EVALUATING THE SWEDANA METHOD FOR PURIFYING SHANKHA: A SCIENTIFIC APPROACH

Kamakshi Joshi^{1*}, Sanjeev Kumar²

*1PG Scholar, ²Ayurvedic Medical Officer, Department of Rasa Shastra Evam Bhaisajya Kalpana, R.G.G.P.G. Ayurvedic College & Hospital Paprola, District Kangra, H.P., India.

Article info

Article History:

Received: 01-08-2024

Accepted: 28-09-2024

Published: 20-10-2024

KEYWORDS:

Shankha, Shuddha and Ashuddha Shankha, Purification, Swedana, Dola Yantra, Sudha Varga, Calcium Carbonate (CaCO₃).

ABSTRACT

Shodhana is the process of conversion of poisonous drugs into non-poisonous form, thereby making them suitable for internal administration to obtain the desired therapeutic benefits. *Shankha* is one of the rich sources of calcium of animal origin i.e., from the shell of marine creature called *Turbinella pyrum*, *Xanthus pyrum* which are generally found in the shallow ocean coast along with the several weeds and other minerals which makes it unsuitable for direct internal administration. Hence, the intermediate process i.e., *Shodhana* is required. There are different methods of *Shodhana* like *Swedana* (boiling), *Kshalana* (washing), *Bharjana* (frying), *Nirvapana* (quenching in liquid media). This paper explores the one of the methods of *Shankha Shodhana* which is *Swedana* (boiling) of *Ashuddha Shankha* in lemon juice for 12 hours and different physical changes that occurred in *Shankha* after *Shodhana* viz. change in the weight, colour, hardness, texture of *Shankha*.

INTRODUCTION

India is the rich source of ancient knowledge of medicine that is well portrayed in Ayurveda. Ayurveda is a Sanskrit word meaning 'Science of life'. It is called so because various Ayurvedic texts account the knowledge of naturally occurring drugs, both of herbal and mineral origin and different formulations for maintaining the health of healthy people and curing the disease of the diseased. *Rasa Shastra* is one of the branches of *Ayurveda* which deals with the naturally occurring metals and minerals. There is the increased demand of Ayurvedic medicines these days as people are becoming more aware of the benefits of these medicines. Although these metals and minerals have several therapeutic benefits but we cannot use them in their native form. Ancient *Acharya* have described the toxicity of respective impure metals and minerals along with their different methods of *Shodhana*.

The concept of *Shodhana* i.e., purification and potentiation deals with the reduction of the toxic effects of metals and minerals by physical, chemical

and biological changes and potentiating their therapeutic effects. Different *Shodhana* processes include *Swedana* (boiling), *Kshalana* (washing), *Bharjana* (frying), *Nirvapana* (quenching in liquid media). These processes vary from mineral to mineral depending upon their structure, physical properties and chemical composition.

This research article includes the detailed description of the method of *Shodhana* of *Shankha* which is the rich source of Calcium Carbonate (CaCO₃). The *Shodhana* process which was employed for the purification was *Swedana* i.e., biofomentation of *Ashuddha Shankha* in *Dola Yantra* in *Nimbu Swarasa* for 12 hours. The detailed description of the process will be discussed further in this research article.

Description of *Shankha*^[1]

Calcium containing minerals are included under *Sudha Varga*, an important classification of *Rasa Dravya*. *Shankha* is one of the drugs of this *Varga*. Calcium Carbonate (CaCO₃) is the main chemical constituent of *Sudha Varga* drugs, therefore can be used as supplement of calcium in the form of *Bhasma*. *Shankha Shodhana* is an intermediate process in the preparation of its *Bhasma*. It is the porcelaneous shell of various species of sea snail viz. called *Turbinella pyrum*, *Xanthus pyrum* which are generally found in the shallow ocean coast along with the several weeds and other minerals. Therefore, the *Shankha* obtained from

Access this article online

Quick Response Code



<https://doi.org/10.47070/ijapr.v12i9.3383>

Published by Mahadev Publications (Regd.)
publication licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0
International (CC BY-NC-SA 4.0)

ocean bed is not fit for direct internal use and there is the necessity of *Shodhana* before it is used for internal administration.

Types of *Shankha* [2]

According to *Rasa Tarangini*, there are two types of *Shankha*:

1. *Vamavarta*, which is left turned when seen with the uppermost opening and is dextral form of species where the coils of shell expand in clockwise spiral when viewed from the apex of shell. This is the commonly found species of *Shankha*.
2. *Dakshinavarta*, which is rarely found species where the coils of shell expand in anticlockwise spiral when viewed from the apex of shell.

As *Dakshinavarta* variety is rarely found, *Vamavarta Shankha* were taken for the *Shodhana* process in this research article.

MATERIAL

1. 500gm of *Ashuddha Shankha* were procured from Charak Govt. Ayurvedic Pharmacy, Paprola (H.P.)
2. 30kg of fresh lemons were purchased from local market of Paprola.

Equipments: Weighing machine, S.S. vessel, iron rod, muslin cloth, lemon squeezer, L.P.G. stove, tray, beaker, knife.

METHOD

Reference: R.T. 12/11[3]

Principle: *Swedana*

Duration: 12 hours

Procedure: Firstly, 500gm of *Ashuddha Shankha* were taken and washed with hot water to remove the external dirt particles like sand, weeds. Then the washed *Shankha* were reduced into smaller pieces with the help of iron mortar and pestle and were tied in two small *Pottali* of cotton cloth each containing 250gm of *Shankha*. Then the fresh lemons were cut into halves and were squeezed to obtain juice for *Swedana* of *Shankha* in *Dola Yantra*. Approximately 14.2lt of juice was extracted from 30kg of lemons. This lemon juice was transferred to S.S. vessel and both the *Pottali* of *Ashuddha Shankha* were hung in vessel with the help of rod in the manner that the *Pottali* got submerged completely in lemon juice and the boiling was done for 12 hours. After 12 hours, the *Pottali* were taken out of the vessel and were allowed to cool for their easy opening. The purified *Shankha* were taken out and were washed with the warm water and dried.

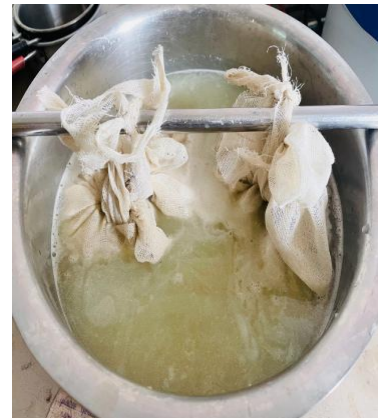
Shodhana of *Shankha* by *Swedana* in *Dola Yantra*



Fresh Lemon Juice



Ashuddha Shankha



Pottali of *Ashuddha Shankha* Dipped in Lemon Juice



Pottali Containing *Shuddha Shankha*



Lemon Juice Turned Turbid After *Shodhana*



Shuddha shankha

Observations After Shodhana

S.No.	Observation	Before Shodhana	After Shodhana
1.	Weight of <i>Shankha</i>	500gm	487gm (loss in weight was 13gm i.e., 2.6% loss)
2.	Colour of <i>Shankha</i>	White with yellowish tinge and was lustrous	Dull white and became lusterless
3.	Texture of <i>Shankha</i>	Smooth and shiny	Rough
4.	Colour of lemon juice	Clear, pale yellow	Turbid, reddish yellow

Precautions

1. *Pottali* should not touch the bottom or inner surface of S.S. vessel.
2. *Pottali* must be placed in the centre of the vessel and should submerge completely.
3. The *Pottali* should be securely wrapped and tied to prevent spillage of *Shankha*.
4. *Nimbu Swarasa* should be added at regular intervals to prevent the *Pottali* from overheating.
5. The entire process must be carried out at moderate flame.

DISCUSSION

Though there are different media for *Shodhana* of *Shankha* as mentioned by different *Acharya*, but in the present study the reference from *Rasa Tarangini* has been taken i.e., *Swedana* in *Nimbu Swarasa* for 12 hours. It was observed that after *Shodhana*, *Shankha* became rough and lustreless due to reaction between *Shankha* (alkaline medium) and lemon juice (acidic medium) which resulted in corrosion of outer layer of *Shankha* thereby causing reduction in its weight and hardness. The colour change in lemon juice from pale yellow to turbid reddish yellow was also due to the above said reaction.

Shankha is a very hard substance and cannot be broken easily. The reduction in its hardness after *Shodhana* facilitates the *Marana* process for further preparation of *Shankha Bhasma*. Thus, *Shodhana* not only removes the physical impurities but also increases its brittleness by reduction in hardness thereby facilitating the formation of *Shankha Bhasma* and it is therapeutically beneficial only when used in *Bhasma* form. Therefore, its *Shodhana* plays an important role.

Fick's Law of Diffusion

This law states, "the flux of an atom of a substance travel from one concentration to other concentration in a fixed period of time." According to this law, there is diffusion of molecules between the mineral to be purified and media, as there is a concentration gradient between the two. Therefore, in the *Shodhana* procedure, the solutes travel from media to mineral and in the same time, unwanted materials move from minerals to the media which leads to weight loss after the *Shodhana* process.

Role of Nimbu Swarasa in the Shodhana of Shankha

1. **Acidic nature:** *Nimbu Swarasa* is rich in citric acid which helps breaking down the impurities. The acid reacts with the unwanted materials, facilitating their removal and improving the overall purity of the substances.
2. **Softening and detoxification:** The acidic environment created by lemon juice help softening the shell or mineral and making it easier to purify. It detoxifies the materials by neutralizing any harmful elements, ensuring they are free from toxic residues.
3. **Enhancing bioavailability:** *Nimbu Swarasa* helps converting the mineral into a more bioavailable form. It enhances the assimilation of the calcified substances, making them easier to be absorbed by the body once they are incorporated into Ayurvedic formulations.

Reason for weight loss after the Shodhana processes: The loss may have occurred due to the removal of physical contaminants such as clay and sand during the purification phase.

Reason for the turbidity of Nimbu Swarasa at the end of the Shodhana process: *Nimbu Swarasa* turned turbid after *Shodhana* due to the reaction between the acidic lemon juice and calcium carbonate in *Shankha* which formed calcium salts and released carbon dioxide causing the liquid to become cloudy.

There are so many groups of drugs in *Rasa Shastra* like *Maharasa*, *Uprasa*, *Lauhadi Varga*, *Ratna Varga*, *Visha Varga* etc which are therapeutically beneficial but different types of impurities are present in their crude form and hence there are chances of heterogeneous mixing of different toxic and impure substances with the drug. Therefore, *Shodhana* is a preparatory step for internal administration of various herbs and minerals. It helps in making the drug suitable for further processes like *Marana*, *Satvapata* so that the desired therapeutic benefits of drug can be achieved either individually or in formulations. Hence, the *Shodhana* processes mentioned in Ayurvedic classical texts are not merely the process of purification or detoxification but also of increasing the therapeutic benefits of drugs. After *Shodhana*, purified ingredients are used in the preparation of *Bhasma* (calcinated powders), *Rasa*

(mercurial preparations) and other medicinal formulations. This process ensures that the final product is therapeutically effective, bioavailable, free from any harmful effects and alters the physical and chemical structure of the raw materials, making them more suitable for therapeutic use thereby increasing their bio availability i.e., improving their ability to be absorbed and assimilated by the body.

CONCLUSION

In summary, the *Shodhana* process is the foundation of safety and efficacy in *Rasa Shastra*. It transforms raw, toxic materials into potent medicinal substances that play a crucial role in Ayurvedic

therapeutics, especially in treating chronic diseases and enhancing longevity.

REFERENCES

1. Reddy KRC. *Rasa Shastra*, Chaukhambha Sanskrit Bhawan, Varanasi, 2007; 529-533.
2. Sharma Sadananda *Rasa Tarangini*, 1st ed. 2018 Varanasi Chaukhambha Surbharti Publication, Taranga 12, Shloka 3-5, Page no.265
3. Sharma S; *Rasa Tarangini*, Prasadani Vyakhya by Haridatta Shastri, Rasavigyana, Ekavimsa Taranga, Dharmananda Shastri: editor, Reprint edition: 2000, Motilal Banarasidas Publications Delhi, Chapter-22, Pg. no: 286, verse: 6-7.

Cite this article as:

Kamakshi Joshi, Sanjeev Kumar. Evaluating the Swedana Method for Purifying Shankha : A Scientific Approach. *International Journal of Ayurveda and Pharma Research*. 2024;12(9):39-42.

<https://doi.org/10.47070/ijapr.v12i9.3383>

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

*Address for correspondence

Dr. Kamakshi Joshi

PG Scholar,

Department of Rasa Shastra Evam

Bhaishajya Kalpana R. G. G. P. G.

Ayurvedic College & Hospital

Paprola, District Kangra (H.P)

Email:

kamakshijoshi83@gmail.com

Disclaimer: IJAPR is solely owned by Mahadev Publications - dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJAPR cannot accept any responsibility or liability for the articles content which are published. The views expressed in articles by our contributing authors are not necessarily those of IJAPR editor or editorial board members.

