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Shodhana As A Tool For Drug Detoxification And Efficacy Improvement

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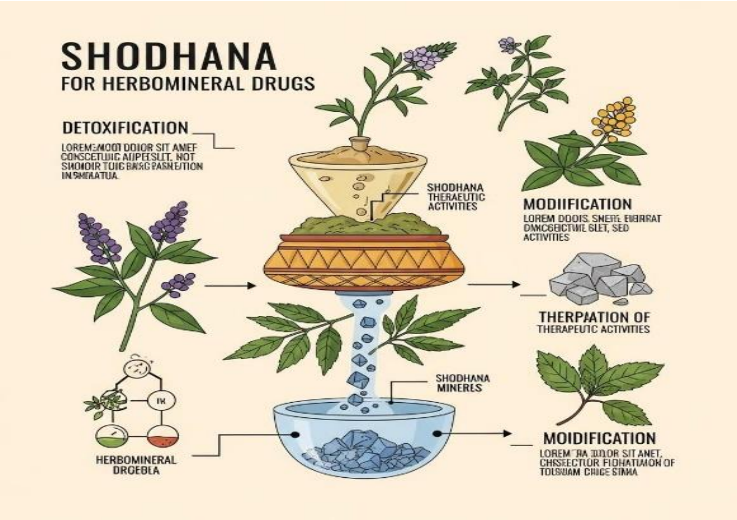
Abstract

There is a great importance of Shodhana (purification process) in Ayurvedic medicines, especially Rasaushadhis. It highlights that although some substances may be toxic, proper purification makes them safe and effective. The study examines how Shodhana changes the physical, chemical, and biological properties of these substances. Overall, it shows that Shodhana improves the safety and therapeutic benefits of Ayurvedic treatments.An essential component of Ayurvedic medicine is Rasachikitsa. Without the Rasaushadhis being used correctly, it would not be incorrect to say that Ayurvedic therapy is not complete. There are some common misconceptions about the harmful consequences of Rasaushadhis. It is acknowledged that the Rasadravyas have certain harmful effects; however, this can be mitigated by treating the toxic Rasadravyas in conjunction with some Shodhana Dravyas.The Shodhana idea of Rasaushadhis, their therapeutic value, and the Shodhana procedures used to them in order to make them therapeutically effective are all covered in this article.The main objective is to critically examine Shodhana procedures in light of the modifications occurring during Shodhana and investigate their applicability in Ayurvedic medicine.The usage of Shodhana in Rasaushadhi production, the various forms of Shodhana, and the physical, chemical, and biological changes are all documented, along with the processes involved and the role of Shodhana Dravyas. There is also discussion of the Panchabhautik component of Shodhana. By including certain characteristics of the media employed, the Shodhana method imparts specific physical, chemical, and biological modifications. The Shuddha Dravyas profit in several ways from the procedures involved. This improves treatment efficacy and provides a wide range of protection against many illnesses.

Keywords: Drug Detoxification, Toxicity Reduction, Herbal Purification, Medicinal Plant Safety,TherapeuticProcessing,HerbalDrugStandardization,ShodhanaSamskara,Poisonous herbs.

Introduction

Shodhana (purification) has been an important part of Ayurveda since ancient times, helping make medicines safer and more effective, especially those made from herbs and minerals.The idea of Shodhana treatment has been used in Ayurvedic medicine since the Caraka Samhita (1000–500 B.C.). It states that Saucha (Suddhi Karana) was also a part of the actions allegedly in charge of the additions to the medications characteristics as a result of different pharmaceutical operations and procedures.Shodhana procedures were required starting in the eighth century A.D., during the Rasashastra period, due to the use of hazardous plants and minerals. For the past few centuries, Rasaushadhis have been used in Ayurvedic medicine. Ayurvedic medicine followed a number of trends, but after the eighth century AD, Rasaushadhis were well-known for their quick-acting, low-dosage, and wide-ranging effects on illnesses.Up until recently, Ayurvedic practitioners frequently prescribed Rasaushadhis.



Both degree holders and non-degree holders are among these practitioners. However, some recent research has verified that heavy metals are present in a few formulations. As a result, certain European nations banned the prescription of these Rasaushadhis.Even with the use of the Vishadavyas, ancient alchemists worked very hard to provide health. Without taking into account the Doshas and Dushyas, the Rasaushadhis could be recommended under certain circumstances. This can be achieved by using specific Shodhana techniques to detoxify the harmful medications. The purpose of this article is to discuss the significance of Shodhana procedures for herbomineral medications, with a focus on detoxification and therapeutic activity adjustment.

Pharmaceutical Methods

Principles of Shodhana

The science of Rasashastra, which deals with Parada, metals, non-metals, minerals, precious stones, herbs, etc., promotes the use of some poisonous substances. These substances toxicity is addressed by a number of intermediate pharmaceutical procedures designed to both lessen the toxicity and incorporate the beneficial qualities. One such technique that has a multifaceted application in the treatment of both herbal and mineral medications is shodhana. It's fascinating to note that certain media are employed for Shodhana (purification/processing) of specific poisonous herbs, such as Godugdha for Kupeelu[1] (Strychnos nux-vomica Linn.) and Gomutra (cow's urine) for Shodhana of Vatsanabha. Shodhana has been defined by ancient Ayurvedic writings such as the Charaka Samhita (1200 AD[2)]. According to this, Karana (processing) is the refinement of natural materials, which entails adding new qualities[3]. Shaucha (cleaning) is one of the eight ways that these qualities are instilled.While allusions to the Shodhana treatment date back to the Samhita period, pharmacological details are first found in books pertaining to Rasashastra (after the eighth century AD). The idea of Shodhana may have contributed to the medications of Rasashastra becoming popular among the general public despite their toxic and detrimental qualities. The pioneers of Rasashastra, particularly Siddha Nagarjuna (8th century AD), were very interested in the Shodhana treatment. This was intended for cleansing.of both the herbs and the herbomineral medications. The medication toxicity is reduced by these purifying procedures to a level that the body can tolerate. When Shodhana procedures are applied correctly, these medications either have no harmful effects at all or very few[4].

Conceptual Definition

Samskara is the process of improving the Bala and Teja of the medications, whereas Shodhana is the process of eliminating the Doshas. Herbal and herbomineral medicines are an essential component of Rasashastra.Since the majority of these medications are found naturally, they could be contaminated chemically or physically. Therefore, the Doshas are the undesirable characteristics and diverse chemicals that give medications their toxicity. Shodhana is recommended to remove all such contaminants and harmful traits while also incorporating beneficial traits. Shodhana, then, is a method of separating pharmaceuticals from their chemical and physical contaminants using various pharmaceutical processing techniques. This aids in the medications detoxification and purification

Shodhana Process

Raw Drug (Herbal / Mineral / Metal)

↓

Presence of Doshas (Impurities / Toxicity)

↓

Selection of Shodhana Dravya

(Plant / Animal / Mineral media)

↓

Selection of Method

↓ ↓

Sagni (with heat) **Niragni (without heat)**

↓ ↓

Nirvapana **Bhavana**

Dhalana **Nimajjana**

Swedana **Prakshalana**

Patana **Shoshana**

↓ ↓

Physical + Chemical + Biological Changes

↓

Detoxification + Property Enhancement

↓

Shuddha Dravya (Purified Drug)

↓

Further Processing (Marana / Direct Use)

Two Aspects of Shodhana[5]

- Shuddhidravya, also known as Shodhya Dravya, is the material that is purified. ▪
- Shodhana Dravya: This is the medication used to cure Shodhya Dravya

Purpose of Shodhana Process

Morphological Changes

1.Removal of unwanted physical contaminants that are washable, evaporable, or soluble. For instance, Shilajit is separated from insoluble physical impurities, and Guggulu Shodhana includes its separation from the physical combination.

2. Including the intended medicinal qualities.

3.Enhancement of the medicinal properties of the substance.

4.Transformation of the drug ingredient into an appropriate form to provide the intermediate product needed for additional processing.

5. By repeatedly heating and quenching the mineral, the hardness is reduced and it becomes fragile. For instance, Triphala Kwatha is created by quenching red hot Abhraka.

6.To expose the maximum amount of drug to the purifying media by reducing the particle size.

7.Nirvapa causes fissures to form on the surface of metals and minerals, which break into coarse powder. Particle size is further reduced by the Bhavana process.

Chemical Modifications

1.The drug's toxicity is eliminated or reduced to a level that the body can tolerate. For instance, Vatsanabha is treated with Gomutra, which helps to lessen its harmful qualities.

2.Conversion of a non-homogeneous substance into a homogenous one; brittle, ductile, hard to soft.

3.Value addition in terms of desired chemical changes: Lauha, for example, interacts with ambient oxygen when heated to generate ferric oxide, which the body may readily absorb. Additionally, when Makshika is heated, sulfur is removed and the iron and copper components change into their oxide forms.It has medicinal qualities and can be used directly.

4.Assists with obtaining the appropriate medication needed for Maran.

5.Removal of chemical contaminants: For example, heating is used to remove contaminants like arsenic during Makshika Shodhana.

Biological Modifications

1. The medications are made homologous to the cells, their toxicity is lowered to levels that the body can tolerate, and the cells' acceptance is raised.

2.Combining organic materials (such as herbs or medications derived from animals) with inorganic materials.It facilitates quicker assimilation and absorption into bodily fluids.

Type of Change	Effect
Physical	Size reduction, brittleness, impurity removal
Chemical	Toxicity reduction, oxidation, composition change
Biological	Better absorption, increased compatibility

Shodhana

It is categorized as:-

Samanya Shodhana[6]: In this case, a standard method appropriate for a class of medications is used.One set of medications is treated using similar methods because they share certain types of contaminants. For example-Samanya Shodhana, which involves heating and quenching all Dhatus into the Taila, Takra, Gomutra, Kanji, and Kulattha Kwatha, is applied to Dhatuvarga.

This Shodhana gives the medications brittleness, aids in layer separation, and prepares them for additional procedures.

Vishesha Shodhana[7]: In this case, a specific method appropriate for that medicine is used. Each medicine is subjected to a specific process since it varies from the others in terms of origin, structure, form, contaminants, and chemical composition. Additionally, the Vishesha Shodhana seeks to teach specific therapeutic values. For example, a decoction of triphala (processed with Gomutra) is used to purify tamra.

These two processes are further broken down as follows[8]

Sagni Shodhana: In this case, fire is used directly to complete the operation. such as Nirvapa, Dhalana, Bharjana, Puta, Swedana, Patana, and so on.

Niragni Shodhana: In this method, fire is not directly used. For instance, Bhavana, Gharshana, Nimajjana, Prakshalana, Shoshana, Sinchana, and so on.

Methods of Shodhana

Nirvapana(Heating and quenching into the desired liquid medium)

Heating and quenching into the desired liquid medium is known as nirvapana[9].After being heated to a red temperature, the material meant for Shodhana treatment is instantly quenched into the liquid medium. For instance, an acidic medium (triphala decoction), an alkaline medium (lime water), oils (sesame oil), milk, etc[10].Until the material becomes brittle, the heating and dipping process is repeated. Nirwapana treatment purifies hard materials such as Abhraka, Swarnamakshika, Loha, Mandoora, Tamra, and Hiraka. Particle disintegration follows, and more surfaces are exposed to an acidic or alkaline media due to the smaller particle size. Nirwapana repetition is determined by evaluating the mineral's hardness (metals or jewels).Before conducting the Nirwapana, one must be aware of the minerals' melting and boiling points.Sesame oil, butter milk, cow urine, Kanji (sour gruel), and Kulattha Kwatha are frequently utilized liquid media[11].

Dhalana[12](Heating, melting, and submerging in liquid)

After being heated until it melts, the substance to be cleansed is quickly added to the cold liquid medium.Until the material is coarsely powdered and brittle, this process is repeated. This kind of Shodhana treatment purifies the Putilohas, Naga, Vanga, Yashada, and Gandhaka. The Putilohas typically use churnodaka, or lime water, as their medium[13]. Pithara Yantra assists in carrying out this procedure. Like milk and ghee, gandhak is also cleansed[14]. Physical contaminants are held in place by the filter cloth, whereas fat-soluble contaminants dissolve in the ghee and water-soluble contaminants dissolve in the milk[15].

Urdhvapatana[16] (Ascending Distillation Process)

The Urdhvapatana Yantra is treated with a paste made by combining the item to be purified with an acidic media, such as lemon juice or Kanji.This approach is used to purify aromatic compounds and chemicals with low vaporization points. The inside surface of the upper earthen pot is where the cleaned material builds up. For instance, this procedure is used to extract Parada from Hingula[17].By ensuring that adulterants are separated, this therapy produces a medication that is purified.

Adhahpatana[18] (Distillation and Sublimation)

The Urdhwapatana procedure is comparable to this treatment. The lower earthen pot is where the cleaned material is kept. Parad Shodhana, for instance.

Bharjana (Frying)

Ghee (Hingu[19], for example) or no ghee (Tankana[20], Kankshi[21]) is applied to the item to be cleansed.While Tankana and Kankshi evaporate as a result of crystallization water loss, the Bharjana eliminates the Hingu's high moisture content.The substance becomes light, puffy, and brittle after frying.

Bhavana[22](Trituration)

The additional herbs or minerals are applied to the material that has to be cleansed. For instance, Bhavana is offered with ginger and lemon juice to purify Manahshila[23] and Kasisa[24], respectively. Regarding Parada Shodhana, one should remember the distinction between Bhavana and Mardana. Parada Shodhana entails processing Parada with Triphala, Madhu, Srishtyambuja, etc.Even so, these processes cannot be classified as Bhavana because the "Sampeshyet Shoshanam" phenomena is not there or the media is not absorbed in the substance.The transfer of soluble contaminants from minerals to herbs is facilitated by the trituration of minerals and herbs. In a similar manner, the mineral substances receive the organic components.The transfer of soluble contaminants from minerals to herbs is facilitated by the trituration of minerals and herbs. In a similar manner, the mineral substances receive the organic components.

Virechana[25] (Cleaning)

After being cleaned, the impure material is filtered. This aids in getting rid of the adulteration. This procedure is used to purify Jiraka and Sarshapa.

Shoshana (Drying)

The material to be cleansed, such as Shigru, Cotton, and Apamarga seeds, is shade-dried.This aids in removing the material’s excessive moisture.

Sthapana(Soaking in liquid)

Gomutra, Kanji, and other impure materials are steeped in an acidic liquid. This procedure removes the skin of Vatsanabha[26] and the outer shell of Jayapala[27]. The few criteria used for high-quality herb purification include the removal of the outer shell (like Jayapala), the needle-puncture test (like Vatsanabha), and the decrease in stickiness (like Guggulu).

Swedana(Boiling)

The impure material is boiled in an acidic medium (for example, Nimbu-swaras is used to boil Shankha, Shukti, Varatika, Godanti, and Prawal)[28] Steam from water or milk is used to foment the substance to be cleansed. Shankha, Shukti, Varatika, and Prawal's physical and exterior impurities are softened and then further eliminated by cleansing. By boiling these Dravyas in an acidic medium, their excessive alkalinity is decreased.

Galana(Filtereing)

A cloth or sieve is used to filter the liquid.This aids in the removal of heterogeneous compounds and adulterants. The cloth or sieve retains the physical contaminants, making filtered liquid available. such as Gandhaka Shodhana[29]

Gharshana (Rubbing against a rough surface)

This procedure is used to reduce the toxicity and eliminate the shell of substances such as Bhallataka[30].

Mardana[31](Trituration)

This procedure ensures a quicker absorption of the medication within the body by assisting in the decrease of particle size.

Nimajjana[32] (Soaking into the liquid media)

Here, the liquid medium is soaked with the medication that needs to be filtered. The variation in osmotic pressures between transfer of active elements between the two substances is facilitated by the two mediums.

Nirjalikarana (Evaporation)

In this process, water molecules evaporate from compounds such as Tankana or Kankshi[33].

Pachana (Baking)

In this method, a medicine is baked using a liquid medium, such as milk, water, or a decoction. As a result, the cloth becomes softer and less sticky. For instance, Guggulu Shodhana[34].

Prakshalana (Washing)

This procedure uses water to wash the medication in order to assist remove dust and bogus material. Shilajit Shodhana, for instance[35].

Virechana/Pruthakkikarana[36] (Cleaning)

Here, the medication is cleaned to get rid of exterior contaminants, adulterants, and fine dust. This procedure helps to eliminate these contaminants and prepares it for processing. For instance, cleaning Rajika, Jiraka, Krishnajiraka, Pippali, etc.

Vilayana[37] (Substance dissolution in a liquid media)

Drugs like Shilajit dissolve in liquid media like Triphala Kwatha and water. After filtering out the insoluble contaminants, pure medication is produced.

Tvaknishkasana[38] (Drug Skin Removal)

Fresh medications like Shatavari and Ardraka have their skin removed. As a result, a medication with the highest amount of active substance is made accessible.

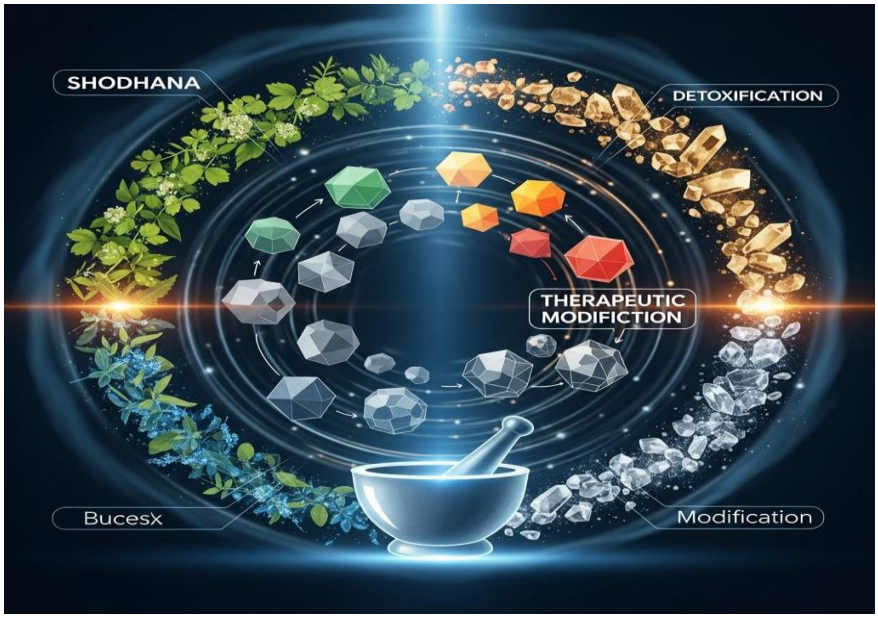
Nistushikarana (Dehusking):

Before preparing Kalka, the Tusha (husk) of herbs like Rasona is removed. Parada Shodhana is then made using the dehusked Rasona[39].

Panchabhautik aspect

Despite the fact that Panchamahabhuta makes up all of the medications, they do have distinct proportions. Hence, in order to attain a properpurification, one should consider the Panchabhautik composition of the raw drug. Similarly, the Post-Shodhana changes in the purified drug should beconsidered before processing those further[40]. During the Shodhana process, the properties of the Panchamahabhutas are reflected in the purified drugs through noticeable changes. For example, Prithvi (earth element) enhances smell as seen in Shuddha Hingu, Aap (water element) increases alkalinity in Shuddha Rason, Teja (fire element) improves luster in Shuddha Kapardika, Vayu (air element) increases roughness in Shuddha Shankha, and Akash (space element) leads to expansion or increased volume in Shuddha Tankana. These changes indicate the improvement in quality and therapeutic properties after purification.

Mahabhuta	**Property Change**	**Example**
Prithvi	Smell change	Hingu
Aap	Alkalinity	Rason
Teja	Luster	Kapardika
Vayu	Roughness	Shankha
Akash	Volume increase	Tankana



Action of Shodhana Dravyas in Detoxification

The Shodhana methods essentially include processing herbal or herbomineral medications with vegetable extractives or liquids that are acidic, alkaline, or neutral, or with oily materials in the presence or absence of heat for a predetermined amount of time. A particular Yantra is mostly used in the heating process, which guarantees the elimination of any volatile or thermo-stable contaminants.

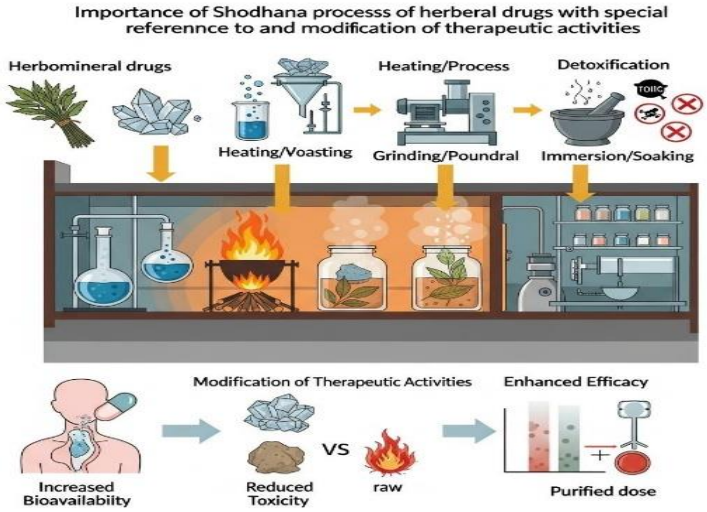
These Shodhana Dravyas aid in the disintegration or modification of the drug's chemical components. To dissolve the substance and separate it from the insoluble contaminants, the Shodhana Dravyas function as a solvent. This guarantees the removal of harmful substances from medications and aids in the physical transformation of certain metals and minerals.A particular media is employed for a certain substance, depending on the desired modifications. The physico-chemical changes that occur during the Shodhana procedures are determined by this particular medium. These physico-chemical alterations include particle size reduction, variation in density to changes in the key elements' elemental composition. The right choice of Shodhana medium guarantees the inclusion of the beneficial components and the removal of the undesirable components from the raw material.

The provenance of the Shodhana media can be used to classify them[41].

1. Swarasa, Kwatha, Kshira, Taila, Shukta, Kanji, Arka, Madya, and Drava Kalpa are plants.

2.Kshira, Madhu, Mutra, Rakta, Artava, Dadhi, Takra, Dadhimastu, Mamsa Rasa, Kukkutanda Taila, and Hastidanta Kwatha are all of animal origin.

3. Origin of minerals: Churnodaka



Conclusion

One of the most unusual and distinctive pharmacological processes in Ayurvedic medicine is shodhana, which entails preparing herbomineral medications using a variety of media derived from plants, minerals, or animals. In addition to incorporating the intended therapeutic activity, this guarantees the elimination of the Doshas. This altered medication is now suitable for additional procedures like Marana, Amritikarana, and Lohitikaraan. For medicinal purposes, some Shuddha Dravyas can be given directly. The medication retains the active elements of the Shodhana Dravyas, increasing its effectiveness. Therefore, the Shodhana method has a significant impact on improving the formulation's medicinal performance.

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