RESEARCH ARTICLE

SHODHANA OF VIHADRASYA W.S.R.T. VATSANABHA SHODHANA AND BHALLATAKA SHODHANA

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ABSTRACT

A substance which causes sadness to the world is also called as Viśha (Poison). Plants are the prime source of medicine in Ayurveda. Several compounds have been isolated from medicinal plants and introduced for the service of mankind; however most of these medicines have been withdrawn due to their toxicity or side-effects. In Ayurveda, the very first stage of purification is called Shodhana. Chemical purification is different from this purification. In chemical purification, there is only elimination of foreign matter, however, Shodhana eliminates harmful matter, modifies or converts undesirable properties to desirable, enhanced therapeutic actions. Current study shows the changes in vihadravya after shodhana. Toxic content of Vatsanabha (Aconite, monks hood) is alkaloids which varies from 0.63 – 4.7%. The total Alkaloid in Ashuddha Vatsanabha was 0.45% w/w and after Shodhana in Gomutra, it was reduced to 0.08% w/w. Mild oil remained in Bhallataka (Semicarpus Anacardium, marking nut) after shodhana and phonolic constituents positive in ashuddha Bhallataka which turns to negative after shodhana done by Ishitak churna (brick powder), gomutra (cow urine), godugha (cow milk) and narikeljala (coconut water). So the Shodhana is an important procedure for vihadravya to get desired effects from them.

INTRODUCTION

Vishadravya (poisonous drugs) may be defined as a substance which is life threatening or produces many other complications and brings about sadness. In Ayurvedic classics, after proper processing, many vishadravyas are used as aushadhadravya (medicine) because, dose differentiates a drug from poison, a medicine at one dose, can serve as viśha or poison at the other. According to Charaka even an acute poison can become an excellent drug if it is properly administered, and similarly even a drug, if not properly administered, becomes an acute poison (AgniveshaCharakasamhita part IShriSatyanarayan Shastri Chaukhamba Bharati Academy 22nd publication 1996). These poisonous or toxic plants are categorized as viśa (poison) and upaviṣa (toxic but not lethal for human health) in Ayurvedic texts and also listed in the schedule-E of Drugs and Cosmetics Act 1940. Hence to promote and introduce their use for medicine, such plant drugs must be detoxified or purified before their use. The detoxification or purification process of any toxic material used for medicinal purposes is termed as “Shodhana”. In Ayurveda, since the times of Charaka Samhita, Shodhana is in practice but its use expanded with the development of Rasashastra since 8th century CE. The concept of Shodhana in Ayurveda not only covers the process of purification or detoxification of physical as well as chemical impurities but also covers the minimization of side effects and improving the potency and therapeutic efficacy of the purified drugs. By Shodhana, toxic constituents from plants are either removed or made less toxic before their use in the formulation. However the Shodhana process requires treatment of such products with cow dung, cow urine, and cow milk, requires sunlight and special containers like Dola yantra. Vatsanabha is a poisonous plant drug used as medicine in Ayurveda. It is used after proper Shodhana process by various media like cow's urine, cow's milk, goat's milk, Triphalakwatha, etc. Cow's urine is better media for Shodhana of Vatsanabha. Vatsanabha is an herb used as an ingredient in many Ayurvedic medicines. It is a poisonous herb, but after purification when used in smaller quantities acts as medicine and it has many health benefits. Bhallataka fruit is used to treat various diseases in Ayurveda. Earliest references of this drug are available since vaidic period. Acharya Charaka mentioned ten formulations of Bhallataka especially for rejuvenation (Agnivesha Charakasamhita part II Kashinath Shastri Chaukhamba Sanskrit Sansthan sixth edition 2000). Though the Bhallataka fruit is having many therapeutic values, pharmacies are scared to use this drug because of its irritant nature. It is stated that,

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**Bhallataka** must be purified (shodhita) before administering to the patients. **Shodhana** is a process by which unwanted impurities are separated from the substance by various pharmaceutical methods like boiling, frying, washing etc. with specific media, thereby minimizing the toxicity level of the substance. Different shodhana processes are mentioned in Ayurvedic classics for the drug Bhallataka, but it is difficult to follow these methods in large scale purification. Here an attempt has been made to analyse the impact of shodhana on vishadravya pharmaceutically and analytically.

**MATERIALS AND METHODS**

All the ingredients needed for **Vatsanabhashodhana** and **Bhallatakashodhana** were taken according to their **Grahayalakshana** before shodhana process.

**Procurement of raw material**- AshuddhaVatsanabha and Bhallataka were collected from local market, Itwari, Nagpur. Buffello dung and Gomutra (cow's urine) was collected from the Goshala, Nagpur. Place of study for Shodhana of Vatsanabha and Bhallataka was Govt. Ayurved College, Nagpur and Analysis were done at Qualichem Laboratory, Gokulpeth, Nagpur.

1) **Vatsanabha Shodhana** (Sadanand Sharma Rasatarangini Kashinath Shastri Motilal Banarasidas publication 2007)

Reference- Rastarangini 24/ 20-21

Equipment- Mritpatra, steel plate, knife etc.

Ingredients- 1) Ashuddha Vatsanabha-400 gram
2) Gomutra- 5 litre
3) Hot water- 1 litre

**Procedure**

Firstly Ashuddha Vatsanabha was washed with water and dried. Then Gomutra was taken in an Mritpatra, Vatsanabhakanda was dipped in it. Then this Mritpatra was kept in sunlight. On next day, the Gomutra in the pot were taken out and new Gomutra added. Same procedure was repeated for 3 days. On 4th day, Vatsanabhakanda were separated from Gomutra and washed with hot water. Then External layer of Vatsanabhakanda were separated by knife. After that Vatsanabhaparikshana done with the help of needle and made chips of Vatsanabha and dried in sunlight. Vatsanabha which not passed the pariksha was again dipped in Gomutra. Then the dried chips of Vatsanabha were grinded in mixer grinder to form powder. Vatsanabha powder was packed in air light container.

**Duration**-7 days

**Observation**-

- Consistency-Soft
- Colour-yellowish brown powder (almond)
- Odour-Gomutraagandhi
- Colour of Media-Gomutra- Dark Red
- Weight after Shodhana-300 gram
- Total loss of Weight-100 gram

**Causes of Weight loss**

External layer removed. While cutting, the damaged and discoloured portion removed.

2) **Bhallataka Shodhana** (Sadanand Sharma Rasatarangini Kashinath Shastri Motilal Banarasidas publication 2007)

References: Rasatarangini 24/477-479

Equipment- Gas stove, Mritpatra, Dolayantra, steel plate, knife, etc.

Ingredients-

1) AshuddhaBhallataka-500 gram
2) Ishtikachoorna-1750 gram
3) Buffelodung- 4.5 litre
4) Gomutra-4.5 litre
5) Godugdha -4.5 litre
6) NarkikalaJala-4.5 litre
7) Hot water- 5 litre

**Procedure**

1) With Ishtika Churna-(Brick powder)

The fruits which were submerged in water, selected for shodhanasanskar while the floating fruits were discarded. Receptacles of selected Bhallataka fruits were drawn out after three days and all fruits were cut near receptacle under water with sharp cutter in two pieces. The weight of Bhallataka fruit was 350 grams. These fruits were rubbed with brick powder. This cloth bag was kept under observation for next 24 hours. After 24 hours brick powder turned black. Bhallataka fruits were then separated and further rubbed with same quantity of brick powder. The process was repeated on second and third day, where the change in colour of brick powder were dark maroon and as original brick powder respectively. Hence the process stopped here. Bhallataka fruits sorted, rinsed with water and dried.

2) **Shodhana in Buffelo dung mixed with water, Gomutra, Godugdha and Narkikala**

Bhallataka fruits total weight was near about 325 gm. Dolayantra was assembled in earthen pot having capacity 5 liter. The Pottali of Bhallataka was suspended to iron rod on the mouth of pot in such a way that it did not touch the bottom of pot and swinging and submerged in liquid media. The pot was heated to boil gently in buffelo dung mixed with water for 3 hours. Buffelo dung mixed with water was added frequently to maintain level. This in turn increase the heating by ½ hour as it decreases the temperature of Shodhanadrayya. Hence total 3 ½ hours heating was given. After this Bhallatakafruits were drawn out, washed with hot water and dried. Same method was applied for the Bhallatakashodhodhana by using Gomutra, Godugdha and NarkikalaJala as a shodhanadrayya. At last they were washed with hot water and dried in sunlight. Dried Bhallataka fruits crushed to make powder and filtered through piece of cloth to get fine powder. All above mentioned processes detoxified Bhallataka fruits by removing its poisonous oil and making it more suitable for medicinal use.

**Duration**- 17 days
Observation

- Consistency-Soft
- Colour-Black powder
- Odour-Gomutragandhi
- Weight after Shodhana-275 gram
- Total loss of Weight-225 gram

Causes of Weight loss

Floating Bhallataka fruits were not taken for shodhana. Receptacles of Bhallataka fruits was removed during shodhana. External layer removed during shodhana. While cutting, the damaged portion was removed. Maximum amount of oil extraction takes place during shodhana in Ishtikachooorna and Gomutra.

Precautions

Pottali should be dipped completely in each liquid media, but should not touch the bottom. The level of shodhanaadraya in Dolayantra should be maintained as it goes down during heating. Shodhana was done on mandagni. All body covered during shodhana.

OBSERVATION AND RESULTS

During Vatsanabha Shodhana, on 2nd day, Vatsanabhakanda were swollen and soft in consistency. The colour of Gomutra became dark red after Shodhana. The needle was passed easily through the Vatsanabhakanda after Shodhana. The layer of Vatsanabha was separated easily after Shodhana and it possess Gomutragandhi and yellowish brown colour. Ashuddha Bhallatakawas grayish black in colour with receptacles. Maximum oil extraction takes place during shodhana in Ishtikachooorna and Gomutra. After Shodhana, Bhallataka becomes soft, Gomutragandhi and black in colour. Weight loss was because of removal of receptacles and oil extraction during shodhana procedure. Mild oil remained in Bhallataka after shodhana.

DISCUSSION

Visha and Upvisha are used in Ayurvedic formulations for the quick action and to get fast results, but before that Shodhana mandatory. Mostly Godugdha and Gomutra are used for Shodhana because of their Vishaghna Prabhava. The Gunasof Gomutra and Godugdha are contrast of Visha. Vatsanabha Shodhana was done in Gomutra as per classical text. According to Modern science the toxic content of Vatsanabha is Alkaloids which varies from 0.63 – 4.7%. The total Alkaloid in Ashuddha Vatsanabha was 0.45% w/w and after Shodhana it was reduced to 0.08% w/w which was 5½ times less than Ashuddha Vatsanabha, it means that although Shodhana of Vatsanabha looks simple process but the results were significant. It justifies the Vishaghnaprabhava of Gomutra. It means that Gomutra contains some enzymes which reduce the toxic alkaloids of Vatsanabha. The analytical test was

Table 1. Physical Analysis of Vatsanabha

<table>
<thead>
<tr>
<th>Vatsanabha</th>
<th>Shabda</th>
<th>Sparsha</th>
<th>Rasa</th>
<th>Gandha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Shodhana</td>
<td>-</td>
<td>Khara, Kathina</td>
<td>Externally dark brown Gostanakar</td>
<td>-</td>
</tr>
<tr>
<td>After Shodhana</td>
<td>-</td>
<td>Snigdh, Mrudu</td>
<td>Whitish, light brown</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 2. Physical Analysis of Bhallataka

<table>
<thead>
<tr>
<th>Bhallataka</th>
<th>Shabda</th>
<th>Sparsha</th>
<th>Rasa</th>
<th>Gandha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Shodhana</td>
<td>-</td>
<td>Khara, Kathina</td>
<td>Externally grayish Black (Heart shape)</td>
<td>-</td>
</tr>
<tr>
<td>After Shodhana</td>
<td>-</td>
<td>Snigdh, Mrudu</td>
<td>Black (internally brownish black)</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 3. Results of Raw Material Study

<table>
<thead>
<tr>
<th>Sample</th>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impure Vatsanabha</td>
<td>Total alkaloids</td>
<td>0.45% w/w</td>
</tr>
<tr>
<td>Impure Bhallataka</td>
<td>Foreign matter</td>
<td>0.84% w/w</td>
</tr>
<tr>
<td></td>
<td>Loss on Drying</td>
<td>2.47% w/w</td>
</tr>
<tr>
<td></td>
<td>Total ash</td>
<td>3.76% w/w</td>
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<tr>
<td></td>
<td>Acid insoluble ash</td>
<td>0.41% w/w</td>
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<tr>
<td></td>
<td>Water soluble extractive</td>
<td>6.14% w/w</td>
</tr>
<tr>
<td></td>
<td>Alcohol soluble extractive</td>
<td>13.10% w/w</td>
</tr>
<tr>
<td></td>
<td>Fatty Acids</td>
<td>36.12% w/w</td>
</tr>
<tr>
<td></td>
<td>Unsapnifiable matter</td>
<td>2.31% w/w</td>
</tr>
<tr>
<td></td>
<td>Phenolic constituents</td>
<td>Positive</td>
</tr>
</tbody>
</table>

Table 4. Results of Analysis of Shodhita Vatsanabha and Shodhita Bhallataka (Honwad Sudhindra, 2012)

<table>
<thead>
<tr>
<th>Vadhavaya</th>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ShodhitaVatsanabha</td>
<td>Total Alkaloids</td>
<td>0.08% w/w</td>
</tr>
<tr>
<td>ShodhitaBhallataka</td>
<td>Foreign matter</td>
<td>0.89% w/w</td>
</tr>
<tr>
<td></td>
<td>Loss on Drying</td>
<td>3.10% w/w</td>
</tr>
<tr>
<td></td>
<td>Total ash</td>
<td>3.95% w/w</td>
</tr>
<tr>
<td></td>
<td>Acid insoluble ash</td>
<td>0.44% w/w</td>
</tr>
<tr>
<td></td>
<td>Water soluble extractive</td>
<td>5.11% w/w</td>
</tr>
<tr>
<td></td>
<td>Alcohol soluble extractive</td>
<td>11.05% w/w</td>
</tr>
<tr>
<td></td>
<td>Fatty Acids</td>
<td>38.49% w/w</td>
</tr>
<tr>
<td></td>
<td>Unsapnifiable matter</td>
<td>1.86% w/w</td>
</tr>
<tr>
<td></td>
<td>Phenolic constituents</td>
<td>Negative</td>
</tr>
</tbody>
</table>
carried out to check authentification of Vatsanabha. Shodhana of Vishadravya means to make it Sharir-satmya by altering their properties. Ancient Acharya had nicely designed the Shodhana procedure so that it show therapeutic action and does not show any poisonous action. Bhallatakashodhana was done as per classical text. Ashuddha Bhallataka was grayish black in colour with receptacles. Maximum oil excretion takes place during shodhana in Ishtikachoorna and Gomutra.

Weight loss was because of removal of receptacles and oil extraction during shodhana procedure. Shodhana of Bhallataka was done in Ishtikachoorna, Buffelo dung, Gomutra, Godugdha and Narikelajala which removes the toxic oil percentage in Bhallataka and made it therapeutically useful. When such shodhanasanskara carried out, Bhallataka poses properties like Rasayana, Yogavahi, Tridoshaghna. Mild oil remained in Bhallataka after shodhana. After Shodhana
Bhallataka becomes soft, Gomutra Gandhi and black in colour. The fatty acids in Ashuddha Bhallataka were found in 36.12% w/w which was within normal limits. Above results shows that raw material selected was authentic. Maximum weight loss of Bhallataka takes place during shodhana in Ishtikachoorina and Gomutra. The water soluble, alcohol soluble extractive and unsapnifiable matter was less in Shuddha Bhallataka than Ashuddha Bhallataka. Fatty acids increases in Shuddha Bhallataka by 2.37% than Ashuddha Bhallataka suggests shodhana carried out in Godugdha successfully.

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