

## ROLE OF DIFFERENT MEDIUM ON ABHRAKA SHODHANA A PHARMACEUTICAL STUDY

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### ABSTRACT :

Metals and minerals are used in Ayurveda in the form of bhasma to treat patients since thousands of year. *Bhasma*, is a ayurvedic metallic/mineral preparation treated with herbal juices or decoction and exposed for certain quantum of heat as per *puta* system described in marana (calcination). Before the process of marana, shodhana (purification) process is carried out. Abhraka is an important mineral of much therapeutic purposes. Many liquid medium are mentioned in Ayurvedic texts for Abhraka shodhana. In this paper an attempt is made to find out the role of different medium in the pharmaceutical process of Abhraka.

**Key words:** Metals, Minerals, Bhasma, Shodhana, Medium

### INTRODUCTION:

Ayurvedic shodhana (purification) process to make the raw material free from impurities which may show side effects and then followed by marana process. Thus it may be regarded that shodhana is an essential pretreatment before maran of metal. Abhraka (biotite) is a commonly used mineral in the form of bhasma for medicinal purposes<sup>1</sup> well known for its hepato protective and rasayana (rejuvenator) used<sup>2</sup>. For the marana purpose, shodhit (purified) abhraka is used. Otherwise it causes kusta, Pandu, Shotha, Hrishul, Parshvashula, Agnimandya, Kapha Vata prakopa, decrease in life span<sup>3</sup>. Shodhana is a process of detoxification by which physical and chemical blemishes and toxic materials are eliminated thus make the material suitable for further processing i.e. conversion into bhasma<sup>4</sup>. Various techniques along with different media are referred in ayurvedic texts<sup>5,6,7</sup>

Pharmaceutics deals with the preparation of drugs from metals, minerals, herbal and aquatic origin mainly. These drugs are rarely used in crude form for medicinal purposes. For any drug to be therapeutically effective it is necessary that it should be assimilated & absorbed in the body, shows its action at target tissues. Metals and minerals have a different structure than the tissue elements of the body. If these are used in raw from they will not be absorbed and adapted to the tissues of the body. Thus they will be therapeutically ineffective. On the other hand these heterogeneous drugs are likely to produce serious adverse effect in the body. So to overcome their serious hazards metals and minerals are usually subjected to marana process and converted into bhasma form for therapeutic uses. But raw material never subjected to marana process directly. Firstly they have to go for the

for the shodhana process of abhraka. Among them nirvapa<sup>8</sup> process (heating to red hot stage and immediately quenched in liquid medium) for seven times is most acceptable. Cow-milk, decoction of triphala {pieces of dry fruits Haritaki (*Emblica officinalis*), Vibhitaki (*Terminalia bellirica*) & Amalaki (*Terminalia chebula*)}, and decoction of badari (*Zizyphus jujuba*) are frequently used as medium<sup>9,10,11</sup>.

To emphasize the importance of pharmaceutical processing's Acharya Kashyap mentioned that even medicine if not prepared properly turns to visha (poison) in contrast if visha is prepared according to rules and regulations it can be used as in the form of medicine. By keeping above mention view in the mind shodhana process of abhraka with different medium was carried out to study their importance.

#### **MATERIALS AND METHOD:**

Many varieties of abhraka are found in nature<sup>12</sup>. Among them black color abhraka regarded as krishnavajrabhraka by ayurvedic texts is considered best for medicinal purposes<sup>13</sup>. Fire test<sup>14</sup> was subjected for finding out quality of Vajrabhraka. For this test, measured quantity of Krishna Vajra Abhraka was heated strongly for 15-20 minutes. The sample found unchanged in this test were selected for shodhana purpose.

After test same sample of 3 kg of Krishna Vajrabhraka was taken from Ayurvedic Pharmacy, I.M.S., B.H.U. 1 Kg of the abhraka was used separately by each media in the process of shodhana. More than 40 drugs are mentioned for Abhraka shodhana, by various Acharyas, out of them Triphala Kwatha, , Godugdha and Badari Kwath were used separately for abhraka shodhana.

#### **Procurement of different liquid medium:**

Kwatha (decoction) was prepared as per reference of Sharangdhar samhita<sup>15</sup>. Cow's milk was procured from Dairy farm of Animal Husbandary Department, Institute of Agriculture Science B.H.U. at morning time.

#### **Method of Shodhana process:**

Shodhana of Abhraka was carried out by Nirvapa (heating and quenching) method with triphala kwath , cow's milk and Badari kwath as medium separately. 1 Kg of Abhraka was taken for each medium. Abhraka was heated in an iron pan to red-hot stage and quenched in each liquid medium for 7 times. Abhraka flakes were turned up & down with metal tongs to given equal exposure of heat to both the surfaces. It was done in regular intervals and was quickly quenched into the media with the help of metal tongs when the Abhraka flakes reached at the stage of red hot. After complete immersion of Abhraka into media the media was separated by filtering it through iron sieve and soft pieces of Abhraka were collected in an iron pan to subject it for next nirvapa. Temperature at the time of red-hot stage was taken by a thermocouple. Each time, liquid media was changed and taken fresh.

#### **OBSERVATION:**

General observation in Abhraka:

1. After each nirvapa, the crammed structure of Abhraka was destroyed to from small pieces & particles due to increased brittleness.
2. The pieces were flooded with the medium.
3. During heating Abhraka produces fumes & typical smell corresponding to medium.
4. Layers were easily separable
5. Abhraka changed into coarse powder after completion of shodhana.

6. It was observed that on complete shodhana fine Abhraka particle start floating in air & more to long distance from the place of shodhana, This may be considered as the sign of completion of shodhana.

7. It takes 25 – 30 minutes to reach at red hot stage.

Changes in Medium :

1. Temperature of medium was suddenly enhanced & boiling started
2. Seething was seen in medium due to expulsion of water vapour.
3. The color of medium became darker after each nirvapa
4. Media separation was done by decantation & iron sieve.
5. Fine, light weight particles of Abhraka causes loss of medium.

**Specific Observations:** These observations regarding weight loss after shodhana process, Temperature pattern during nirvapa process, Time period for each nirvapa and amount of loss of liquid medium are summarized from table 1 to 10

**DISCUSSIONS:** Abhraka was heated upto completely red hot state. At the red hot state of Abhraka, desired changes takes place (i.e. elements present in the Abhraka may be converted into oxide form by reacting with atmospheric oxygen). After heating it was instantly quenched in the liquid media. Instant quenching is important because repeated immediate cooling after heating leads to breaking of the material i.e. reduction in particle size.

At early stage of shodhana cracks were seen at the surface of Abhraka flakes and finally these became coarse powder. Repeated heating and cooling of Abhraka flakes causes disruption in compression – tension equilibrium leads to cracks on the

flake surface. During red hot state compounds are formed on the surface of Abhraka flakes.

It was also observed that on completion of shodhana fine Abhraka particles start floating in air to long distance from the place where shodhana process was carried out. This may be considered as the sign of reduction of size of Abhraka. During shodhana colour of Abhraka became darker with shining nature. This may be because, during red hot state elements of Abhraka reacts with atmospheric oxygen to form oxide compounds, these are usually black in colour. Probably due this reason dark colour appeared in abhraka after shodhana

Time taken for shodhana with cow milk was more in compared with others as probably due to more sliminess and fatty matter milk than other medias. Due to this after quenching Abhraka absorbs moisture more from milk than any other media and so it takes more time to evaporate moisture content thus causing increase on time direction to reach the red hot state.

It was also observed that as shodhana procedure is in progress, Abhraka takes comparatively more time to get complete red hot. During shodhana some of the elements of Abhraka were converted into oxide form. At later stage of shodhana surface area of Abhraka was increased. Due to this reason Abhraka took more time to become complete red hot.

Consumption & percentage of loss of media was more in Cow's milk than other media as shown in table revealing that it was more absorbed by Abhraka flakes than other media.

Temperature pattern table shows that with Triphala kwath & Cow's milk, more temperature was required to reach red hot state than others. Reason might be their

solid content which is more in these two liquids than others. During heating these solid contents are burnt, probably this may be the factor for extended temperature.

#### CONCLUSION:

All these liquid medias act as cooling media during process of nirvapa, thus they may serve as a favorable atmosphere to the material for occurrence of particular chemical reaction and compound formation. These may enter through the cracked surface of the material and cause film coating and further heating leads to breaking of the material. They may also act as source of inorganic traces. Result clearly fix the fact that different liquid medium plays an important role in the pharmaceutical processing's with their own specific characteristics.

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Declared