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Critical Review: Bhasma Kalpana

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Abstract

In Ayurveda, the reference regarding Bhasma Kalpana is found in Samhitas during Arsha Sampradaya. The main development and application of these herbo-mineral/metallic formulations (Bhasma of metals and minerals) started from Aarya Sampradaya i.e. 7th century. These medicines have superior level of efficacy than any other ayurvedic dosage form. The details regarding the same will be discussed during the article.

Keywords: Bhasma; Bhasma kalpna; Ayaskruti

Introduction

Bhasma Kalpana is the type of medicine, which deals with metals and minerals to produce the drugs with higher efficacy in lower doses and with good palatability. Thus, it became the type of medicine, which fulfills the aims and objectives for, preparation of best medicine. In ancient era due to its potent and prodigious effects, Dehavada gained acclamation and got entrenched in the society promptly. It got better, with the evolution of various Rasayogas prepared with or without mercury. Mercurial preparations like Kupi Pakva Rasayana and Pottali Kalpana are mainly used for rejuvenation and in critical illness as an emergency drug.

On the other hand, amalgamation of the two purposes i.e. rejuvenation and disease cure, gave rise to the non-mercurial preparations like Ayaskruti, Pisti, Bhasma etc. But in the due course of time Bhasma Kalpana get developed in both the aspects i.e. with and without the use of Mercury in Bhasma preparation. It seems that drugs used in that era were losing their faster actions so ultimately changing efficacy levels. There for evolution of Bhasma Kalpana took place and by virtue of its quick action and therapeutic efficacy Bhasma Kalpana were incorporated with main stream of Ayurveda.

Bhasmikaran is a process by which a substance which is otherwise bio-incompatible is made in biocompatible by certain Samskaras or processes [1]. The reference regarding Bhasma Kalpana found in Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya during arsha Sampradaya. This concept of reduction in particle size of metal is prevailing since Charaka Samhita (1500BC). For a Bhasma preparation of Lauhadi Rasayan, iron is heated up to red hot and quenched in some liquid media immediately until flakes of iron become in fine powder form [2]. Bhasmas, which are unique Ayurvedic metallic/ mineral preparations, treated with herbal juices or decoction and exposed for certain quantum of heat as per Puta method since seventh century AD and widely recommended for treatment of variety of diseases also for Asadhya diseases [3]. Our science has written much more about the efficacy as well as application of Bhasmas. This study reviews Bhasma Kalpana.

Method of Preparation

Putapaka Method

Bhasma is being prepared by subjecting minerals or metals to three main procedures (Shodhana, Bhavana and Marana). By hammering metals or minerals are made in to coarse powder, which are subjected to Shodhana, after that metals or minerals are heated to red hot and dipped in a particular liquid media for specific number of times or for certain duration of time as per refrences. Shodhita materials are then mixed with specific drugs for Marana and then Bhavana is given with particular drug for specific time. After completion of Bhavana, Chakrikas are prepared and that round shaped Chakrikas are taken in to earthen crucibles. Make sure that junction is sealed by mud smeared clothes. Then this Sharava Samputa is subjected for heating by giving Putas for specific time limit. Now a day electric muffle furnaces are being used which are easy to handle and to keep constant temperature. When cooled down, Sarava Samputa is taken out. Then Samputa opened to collect the product. These procedures are repeated for number of times to get the desired final product in the form Bhasma. For metals having low melting point (lead, tin and zinc), between Shodhana and Bhavana procedure, one intermediate procedure called as Jarana is performed. In this procedure, metals are melted and mixed with some plant drugs and are rubbed until metals become in complete powder form.

Kupipakwa Method

In this method, Bhasmas are prepared by subjecting metals to procedures like Shodhana, Kajjali Nirmana, Bhavana and Kupipakwa. After Shodhana, metals are subjected to form amalgam with mercury, and then purified sulphur is mixed and triturated till black, lusterless, fine and smooth powder is prepared. This procedure is called as Kajjali preparation. Prepared Kajjali is triturated with specific liquid media for certain time period. When the mixture becomes completely dry, it is filled in Kachkupi covered with 7 layers of mud smeared cloth. Bottle is then subjected to Vaaluka Yantra for certain period. Bottle is broken after self-cooling and the Bhasma is collected from bottom of the bottle. Then it is grounded to fine powder form which is nothing but the ultimate desired form.

Changes during Bhasma Preparation

During Shodhna, tension is increased in matter by application of heat, causing linear expansion. After heating, immediate cooling in liquid media leads to decrease in tension and increase in compression force. Repetition in heating and cooling causes disturb in compression tension equilibrium leads to increased brittleness, reduction in hardness and finally reduction in particle size.

In the process of Bhavana, materials are triturated with liquid media in between surface of pestle and mortar. This process involves breaking down of material by rubbing action between two surfaces to produce small particles. Also, due to the repetition of Puta process leads to more reduction in particle size. After Marana, metals generally convert to their compound forms, which are biologically acceptable to the body.

Bhasma Pariksha

Our science says that prepared Bhasma must pass Bhasma Pariksha (tests) enlisted in classical texts [4]. They are like

1) Colour

A specific colour is mentioned for each Bhasma. Alteration in specific colour suggests that Bhasma is not prepared properly. Specific colour of each metal is mentioned in the book by Yogaratnakara.

2) Nischandratvam [5]

Chandratva (luster) is a character of metal. After proper incineration, luster of metal should not remain. Therefore Bhasma is observed under bright sunlight, if luster is still present, it indicates further incineration. Bhasma must be Nischandra for best qualityand potency.

3) Varitara [6]

This test is based on law of surface tension. Little amount of Bhasma is sprinkled on stagnant water. Properly incinerated Bhasma will float on water surface. Varitara test, applied to study lightness and fineness of Bhasma, is floating character of Bhasma on stagnant water surface.

4) Unama [6]

A grain of rice is to be kept carefully on the layer of floated Bhasma. If grain remains as it is on layer, then Bhasma can be considered as properly formed. If it sinks then it is the indication for further incineration.

5) Rekhapurnatva [6]

Bhasma should be so fine that it can fill lines of finger tips. This test is applied to study fineness of Bhasma. Bhasma should be of minimum size for easy absorption and assimilation in the body. So a little amount of Bhasma is rubbed in between index finger and thumb to observe whether particles can fill lines of finger tips

6) Slakshnatvam [5]

It is sensation produced by Bhasma by simple touch with finger tips. Properly incinerated Bhasma attain this quality. Slaksha Bhasma can be absorbed and assimilated in the body without producing any irritation to mucous membrane of gastrointestinal tract.

7) Susukshma [5]

Bhasma must be Sukshma, so that it can be absorbed in the body easily. It indicates fineness.

8) Gatarasatvam [5]

Properly incinerated Bhasma of metal should be of particular taste.

9) Particle Size

Preapared Bhasma should be in Churna (powder) form. Size of particles of Bhasma will be like pollen grais of Pandanus odoratissimus flower (Ketaki pushpa).

10) Apunarbhavata [6]

Apunarbhavata means incapability to regain original metallic form. For this test, Bhasma is mixed with equal quantity of Mitra Panchaka [7-10] and it is sealed in Sarava Samputa, thereafter similar grade of heat used for preparation of particular Bhasma is applied and on self-cooling product is observed. Lustrous particles in it show presence of free metal, which is indicative of improper incineration.

11) Nirutha [6]

Nirutha is to test inability to regain metallic form of metallic Bhasmas. In this test, Bhasmas is mixed with a fixed weight of silver leaf, kept in earthen pots and similar grade of heat is applied and after self-cooling, weight of silver is taken. Increase of silver leaf indicates improperly prepared Bhasma.

Properties of Bhasmas

All Bhasmas have some common properties like Rasayana, Yogavahi, etc. Rasayana indicates immune-modulation and anti-aging quality, and Yogavahi indicates ability of drug carry and targeted drug delivery by Bhasmas. Properly prepared Bhasmas is nontoxic and must be readily absorbable, adaptable and assimilable in the body. Shighravyapti indicates that after Marana, Bhasma becomes easily absorbable and assimilable in the body and spreads quickly in the body. Under Agnideepana, Bhasma increases metabolism at cellular level and acts as catalyst. These attributes of Bhasmas are comparable with the action of nanoparticles in the body.

Conclusions

As we give more number of Puta, the particle size of medicine deceases is the indirect reference for the concept of conversion of drug to Bhasma, which is nothing but the concept of nanotechnology in today's era. All Bhasma Pariksha, properties and types, changes mentioned during Bhasma Kalpana proves the advancement of Rasashastra during ancient science. More researches are essential to establish ancient Bhasma Kalpana as scientific and systemic method of preparation of Ayurvedic dosage form. So, modern science should not blame our tradition and Ayurvedic science.

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