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A Review on Mukta Ancient Drug

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ABSTRACT

Rasa Shastra, or rather called ancient Indian Alchemy, has been involved in the art of medicine that has helped mankind for millenniums. Rasa which means Mercury has been a major part of interest for the Ancient Alchemists in Rasa Shastra. And the safe use of Mercurial preparations as medicines from many years, Rasa Shastra also deals with study and the preparation of other herbo-mineral chemicals using various plant drugs and animal origin. One of the drugs, the most widely used in Rasa Shastra is Mukta or Pearl. There are various categories or groups of drugs (Varga) used in Rasa Shastra viz. Maharasas, Parasas etc. and Mukta is divided under the Ratna (precious treasures) Varga. Mukta is a bright white, round solid black found on sea shells. Because of its beneficial appearance it is widely used in jewelry, cosmetics, and clothing. It is formed by the incorporation of several layers of calcium carbonate and conchiolin around the central nucleus. According to Rasa Shastra classics, Mukta owns Madhura, Sheeta and Laghu. It is also widely used as a powerful Pitta Shamaka. Its purification and Pishti procedures are also mentioned in Rasa Shastra classics which makes pearl very powerful in treating diseases. Mukta is widely used in situations such as Amlapitta, Jwara, Daha, etc.

1. Introduction

One of the ancient sciences of alchemy is Rasa Shastra. This was built several thousand year ago in India. There were two set of thinkers who used in depth understanding to produce higher metals and other used it for medicinal purposes. Rasa which primarily means mercury was a specific area of interest in the preparation of medicinal product for the Rasa Shastra alchemists. But there are different one as well other raw drug that are useful pharmaceutical product preparation has been made. There was nice use some metals, as well as minerals used in combination with raw plant origin drug to form herbo-metallic and herbo-mineral formulations. Many times, raw medicine was also derived from animals and were medication effectively. Certain groups or Vargas was assigned made to categorize the raw drugs namely, Maharasa, Uparasa, Dhatuvarga, Ratnavarga, etc. Mukta or Pearl is one of the raw drugs that was used particularly animal origin. According to Atharvaveda, that material that gives body freedom from diseases is Mukta. Garuda-Purana says that water drops dropping from clouds get into Shukti (Oyster shell) as Sun moves into Swati-Nakshatra and transforms into Mukta [1] (Pearl). It belongs to the class Mollusca, and is called *Pinctada Margaritifera* Latin. Pearl is gem organic in nature. It is found from the pearl shell or oyster located in an ocean, river or various water sources. The word pearl popular in many European languages is synonymous for a bead. In easy word, found inside the soft whitish rough and round in shape tissue of a living sHell (specifically the mantle) typically an oyster shell mollusc it composed minute concentric layers of calcium carbonate essential for crystal formation. Nearly all types of shelled mollusks are able to producing pearls of minor shine or less spherical shape.

1.1 Grahya Laxanas (Characteristics Desired) [2]

Desired Mukta has lustre like moon, it is size is larger, nice looking, soft in touch, circular, without any symbols, with good mass. Its lustre and color does not disappear even after rubbing with salt and Gomutra.

1.2 Agrahya Laxanas (Characteristics Undesired) [3]

Agrahya is called Mukta in which one end undeveloped body, shape is elongated, overallydry, triangular, black in colour, hampered lustre.

1.3 Vernacular Names

Sanskrit - Mukta
Bengali - Mukta
Hindi - Moti
Marathi - Moti
Gujarati - Moti
Arabi - Lulu
English – Pearl

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1.4 Synonyms [4]

Mukta, Mauktika, Shuktija, Muktaphala, Sauktikeya, Shashiratna, Shashipriya, Chandraratna, Chandrapriya, Shaktimani, Binduphala, Ambhasara, Saumyakara.

1.5 Identification [5]

Chemical formula: $CaCO_3$

Color: White, Pink, Silver, Cream, Golden, Green, Blue, Black, Yellow

Cleavage: None

Mohs scale hardness: 2.5-4.5

Streak: White

Specific gravity: 2.6-2.85

1.6 Sources of Origin

On the basis of Ayurved Prakasha, Mukta has eight sources including.

1. Sukti (Oyster shell)
2. Shakha (Conch-shell)
3. Gaja (Elephant)
4. Varaha (Pig)
5. Sarpa (Snake)
6. Matrsya (Fish)
7. Dardura (Frog)
8. Venu (Bamboo)[6]

1.7 Shodhana of Mukta

Mukta is purified Before being used as a medicine, before hand to eliminate any of its possible harmful effect or unfavourable results. As such Mukta does not show any active poisonous alkaloid, traditional procedures are always better to follow. In different Rasa Shastra classics, the Shodhana process is stated in Jayanti Patra Swarasa [7] or Agasti Patra Swarasa [8] or Churnodaka [9] (Lime-water] Mukta is subjected to Swedana in Dola Yantra for 3 hrs for Shodhana procedure.

1.8 Marana of Mukta [10]

Purified Mukta is finely powdered and placed in a mortar. Then add some cow milk or rose water. Fine paste is from when is triturate mixture. Then prepared small Chakrikas and dried. In earthen plates These Chakrikas are stored, sealed and subjected to incineration in Laghu Puta. Within three such Putas, Bhasma of Mukta is prepared.

2. Pharmacological Actions of Mukta [12]

- Rasa - Madhura,
- Virya – Sita
- Guna - Laghu
- Dosha – Pacifies Kapha and Pitta.

It has given cooling effect, shows aphrodisiac effects, appetizer, helpful in burning sensations, good for eyes and help promotes complexion, useful in chronic fever and promotes growth of bones and teeth, best for heart, helpful in diabetes, promotes intellect, helpful in Kshaya, Shwasa, Kaasa, Oseopenea, Vishahara.

2.1 Therapeutic Dose [13]

31.25 to 250 mg (1/4 to 1 Ratti)

2.2 Luster

It is the most significant characteristics, because it also expresses the quality and depth of nacre. On the basis of Rasa Paddhati. Mukta has three types of lusture, viz, Madhuchaaya, i.e., just like honey, Sitachaaya, i.e., just like sugar and Shrikhandachaaya, i.e., just like a preparation made up of sugar and curd [14].

2.3 Shape

Shape can be circular, ornamental, elliptical, button, may be, teardrop, etc. Round is the most valuable and favoured. Odd shaped pearls name as Baroque or irregular or potato shaped some of the names given to Oval shaped pearls are sort of like an egg. Button shaped are round but a little flat. Maybe are round on the top and flat on one side. Tear drop shapes lend themselves.

2.4 Size

The scale is usually measured in millimetres; the most common size is generally 7 mm-7.5 mm.

2.5 Color

Color for freshwater shall we peach, black, lavender, white or pink

2.6 Surface

The surface can be ideal or almost perfect, with tiny pits.

2.7 Physical Properties

- Hardness: 2.5-4
- Texture: Slightly rough; to detect this roughness, the age-old practice of rubbing a pearl against one tooth distinguishes pearl from smooth from limitations.
- Luster: Pearly
- Specific Gravity: The natural range of 2.66-2.78 varies with the source and form of nucleus, while the cultured pearl ranges from 2.72-2.78.
- Toughness: Fair, soft in nature and easily damaged by acid and skin oil.

3. Source and Availability

It exists in natural and artificial forms, [15] It is found in ocean, river, big lakes, etc. In India important sources of pearls are Sea coasts. Rivers of Europe and North America. In primordial times the Red Sea was an important source.

4. Formation of Pearl

Two methods Natural and Cultured are use to formation of Mukta or Pearl. There is no human Involve in the natural method. Whereas culture dare prepared artificially.

a. Natural Method

When a small irritating object is trapped in an oyster shell or any mollusc shell it causes irritation to the inner layer of the oyster and in response to this irritation begins to reduce the substance by hiding its secretion around the object. The mollusk coating lays layers of Calcium Carbonate ($CaCO_3$) in the form of a mineral aragonite or a mixture of aragonite and calcite stored together with a biological horn similar to conchiolin. The combination of aragonite and conchiolin is called nacre, which makes the mother of pearl. The commonly held belief that a grain of sand acts as a nuisance is actually not always so. Common stimulants include organic materials, parasites, or even damage that removes clothing from another part of the mollusk body. These tiny particles or organisms enter where the shell valves are located open to feed or breathe. As the process progresses, the shell itself grows, and the pearl the sack appears to fit into the shell. However, it actually resides in its own relative position within tissue.

b. Cultured Method

Pearl farm is used to cultured method of pearl, with help of human involvement and natural processes. Cultured pearls a tissue implant is the shells response. A tiny part of donor shell mantle tissue is transplanted into a recipient shell. This graft will create pearl sac and calcium carbonate will be precipitate into the pocket by the tissue. There are a variety of choices. for the processingof cultured pearls: use freshwater or seawater shells, insert the graft into the mantle or gonad, incorporate a spherical bead or make it non-beaded.

5. Purity Test

Cultured pearls (beadless or beaded) and imitation pearls can be separated from natural pearls by X-ray testing. Cultured pearls also Nucleated are often'pre-constructed' as they are likely to follow the shape of the implanted shell bead nucleus. One time the pre-formed beads are inserted into the oyster, it'saround the outside surface secrete a few layers of nacre of the implant before it is removed after six months or more. When a cultured pearl with bead is X-ray, it reveals a different

structure to that of a natural pearl. Cultured pearl shows a solid centre with no concentric growth rings, some place as a natural pearl shows a series of concentric growth rings. A bead rarer cultured pearl (Origin from freshwater or saltwater) may show growth rings, having complex central cavity, precipitation of the young pearl sac first witness of the test.

6. Formulations of Mukta

Muktapancamrta, [16]

Vasantakusumkara, [17]

Pravalapancamruta [18]

Kamdudha Rasa, [19]

Vasantatilaka Rasa, [20]

Bruhatvatachintamani, [21]

Varishoshana Rasa [22]

Hiranya-garbhapottali, [23]

Navaratnarajmruganka Rasa [24]

Mukta Bhasma [25-26]

Mukta Shukti Bhasma [27]

7. Advantages of MUKTA Preparations

Mukta bhasma is a unique herbo-mineral calcium component containing traditional Indian Ayurvedic system preparation. It is traditionally used as an antipyretic, G.I tract disordersantiulcer and antacid. It is used for the treatment of bone disorders associated with calcium deficiency. Mukta bhasma has been tested for its antiulcer activity in experimental animals [25-27].

8. Conclusion

A variety of drugs of plant, mineral and animal origin is been used successfully in Rasa Shastra, Mukta or pearl one of them. Although it is not toxic in origin, its Shodhana is advised to prevent any untoward effects before processing it into any formulations. Mukta is used in many formulations of Rasa Shastra along with its Pishtichiefly administered in Pittajand Kaphaj disorders. It occurs in natural and cultured form. Mukta is Sheetain property hence used in Daaha, Amlapitta, Jvara, Trishna, etc. The main chemical constituent of Mukta is calcium carbonate along with traces of other elements that may be responsible for its variety of uses. Thus, Mukta not only proves itself to be one of the most competent sources of sea calcium but also stands firm in ornamental usage.

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