

A Comparative Analytical Study of Hiraka Bhasma (Diamond-Ash)

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Abstract: Precious stones Hiraka (Diamond) is used for the treatment of several ailments. To achieve the desired therapeutics benefit from these stones, it is essential to use good quality of stones and then to process them classically by shodhana and marana procedures. There are several methods described in Ayurveda classics to prepare Hiraka Bhasma. Here the research work is aimed to find out the most easy, economical, qualitatively and least time consuming method for preparing Hiraka Bhasma.

Key word: Shodhana, Marana, Hiraka Bhasma, Analytical study.

I. INTRODUCTION

A Gem stones Hiraka (Diamond) is popular one. The Bhasma of Hiraka is a well known organo-mineral preparation, used for Rasayana, Ayushya, Vrishya, Tridoshagna, Prameha and Arbuda etc... Hiraka Bhasma is not widely available in the market due to lack of standards and high cost, but at the same time it is being manufacturing by some physicians and Industries in the day to day practice of life. Hence, how to Assess its qualitative physically and chemically and standard is a question in this scientifically and technologically advanced era.

Aims & Objectives

- To find out an easy and least expensive method of Hiraka Shodhana and Marana.
- To standardize their methods, and to ascertain difference between them to develop certain diagnostic parameters.

Usage of Ratnas

Ratna should be used in mercurial preparations, in medicines meant to cure and prevent diseases and senile decay, donation, in being used by ornamental as an article of jewellery conducive to health and happiness, and in making

offerings to God. Gems of inferior quality are abortive for each of this purpose. (Ref. R.R.S.4/2)

Characteristics of Diamond (Hiraka)

These are 4c i.e **carat**, **cut**, **color**, and **clarity**. A large, flawless diamond is known as a paragon.

In mineralogy, diamond (from the ancient Greek ἀδάμας – adámas "unbreakable") is an allotrope of carbon, where the carbon atoms are arranged in a variation of the face-centered cubic crystal structure called a diamond lattice.

Types of Hiraka

(1) According to the origin

There are some references about 6 types of Hiraka in Kautilya arthashastra¹⁰

(2) According to the colour

Hiraka are of four different colours, viz white, red yellow and black

(3) According to the Varabhedha

- a. *Brahmin* – good for *rasayana karma*,
- b. *Kshatriya* – good for *rogaharana*
- c. *Vaishya* – good for *lohakarma*
- d. *Shudra* – good for *vayastambhana* and *vyadhisamana*

(4) According to the gender

- a. *Nara (Masculin)* – According to **Rasarnava 6/69**
It is round and without rekha and bindu
- b. *Nari (feminine)* – According to **Rasarnava 6/70**
It has all characters of Nara- Vajra but its shape is flat and oval.

Evil Effect of Hiraka, Not Properly Purified and Incinerated: (Ref.A.P.5/74)

Hiraka, not properly purified and incinerated, give rise to leprosy, pain in the side ribs, anemia, inflammation and heaviness.

Properties of Hiraka

Rasa	- Sadarasa
Guna	- Snigdha
Doshghnta	- Tridoshshamaka

Dose of Hiraka Bhasma

Rref.of RasaTarangini - 23/28 : - 1/32 to 1/16 Rati (**4mg to 8mg**)

Bhaishjya Ratanavali- 2/26: - 1/32 to 1/16 Rati (**4mg to 8mg**)

II. ANALYTICAL STUDY

In identicle analysis of the raw market sample of Hirak stones, it shows mix coloured appiarance, found unmounted in random testing, Rough smallchips, microscopic observation and thermal conductivity identicle to nature these all parameter suggest that the specimen is natural diomand.

III. ANALYSIS OF FINAL PRODUCT

The results of classical parameter indicates that both the samples compiles all the tests and characters as mentioned in Ayurvedic texts so it was considered that the Bhasma preparation has been completed and both the samples are of desired quality.

Result of XRD indicates that the both the samples of Hiraka Bhasma consisting , the results of ICP studies suporting this fact that Hiraka Bhasma sample A posseses 48.6670% of Fe and Sample B posseses 36.3490% of Fe,

Table:1 comparing the compounds of Hiraka Bhasma, loha bhasma and mandoor bhasma

Sample	Compound as shown in XRD study	Colour
Hiraka Bhasma	Fe ₂ O ₃	Malin Rakta
Loha Bhasma	Fe ₂ O ₃ , FeO, FeS, Fe ₃ O ₄	Pakva jambu phal sadash varna
Mandoor Bhasma	Fe ₂ O ₃ , FeO, Fe ₃ O ₄ ,	Raktachandana varna

The data of table indicates that the Fe₂O₃ is the major element of Hiraka Bhasma and Mandoor Bhasma as well as the colour of the both bhasma is quit same, but there may be difference in the othe elements they have, unless they both were equally given importance for the treatment of karkatarbuda in classics.

Sample A possesses below detectable limit of arsenic while sample B possessing 0.485%, of arsenic this veriation found due to entirely different synthasis posseses of both the samples, in the preparation of sample B, As₂S₃ & As₂S₂ i.e. Su. Haratala and Su. Manahshila are used as a media while in the preparation of sample A no any arsenic compound is used as a media for incineration, however the percentage of As in sample B is negligible, lead found BDL in sample B where as 0.0043% in sample A which is negligible

The quantum of heat given for incineration of both sample is 32 Putas for sample A and 39 Putas for sample B, sample A is having VMD of 113 µm while Sample B is having VMD of 69.4 µm in particle size analysis. This may be due to the different incineration media and quantum of heat given, the sample which is incinerated with the use of As₂S₃ as a media and comparatively more quantum of heat possessing comparatively very small particle size than the other, so it can be concluded that As₂S₃ is a better media for incineration of Hiraka as far as Particle size distribution is concern, however quantum of heat is equally important.

IV. CONCLUSION

- Analytically Hiraka Bhasma posses Fe₂O₃ as a major compound. Color of the Hiraka Bhasma is Malina Rakta which is due to presence of Fe₂O₃. Particle size of Hiraka Bhasma-I & II were found 113 µm & 69.4 µm VMD respectively.

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