

COMPARATIVE PHARMACEUTICAL STUDY OF VAIKRANTA BHASMA PREPARED FROM TWO DIFFERENT SOURCES

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ABSTRACT

Introduction: *Vaikranta* has an important place in *Rasashastra* and is placed under *maharasa* and *uparatna* group. *Vaikranta* is identified as tourmaline by later authors. *Vaikrantabhasma* can be used as substitute for *Vajra bhasma* as it has similar therapeutic properties. In market, two varieties of tourmaline i.e. black and multi coloured are available. Among these, black is opaque, easily available and commonly used for the preparation of *bhasma*. Even though *Vaikranta Bhasma* has high therapeutic value, it is not commonly used in clinical practice because of lack of its availability, higher expense and the complex pharmaceutical procedure in the preparation of *bhasma*. **Methodology:** It involves preparation of two samples of *Vaikranta bhasma* which were prepared by subjecting them to *shodhana* and *marana*, as mentioned in classics. **Observation and Results:** Though the classics state 8 *putas* for *Vaikrantabhasma* the *Bhasma lakshanas* were appreciated after 14th *puta*. The sources were different for two samples with different colours but the *Bhasma* obtained at the end of 14th *puta* had no difference in colour. **Conclusion:** After *marana* the colour of two samples of *Vaikranthabhasma* were similar i.e. Mud brown colour.

Keywords: *Vaikranta*, *Maharasa*, *Uparatna*, *Mardana*, *Marana*, *Shodhana*, Tourmaline.

INTRODUCTION

Rasashastra mainly deals with the preparation of medicine from metals and minerals. With the course of time, the demand of metals and minerals are found to be expanding day by day. These medicines provide quick results and they are useful in majority of diseases which are difficult to cure. Thus, they are considered to be superior when compared to other class of medicines. Most of the *Acharyas* have included *Vaikranta* either under *Maharasas* or

Uparatnas but few have mentioned it under both the categories.

Different minerals like feldspar, tourmaline, rock crystal, calcium fluorite have more or less similar properties and appearance to *Vaikranta* described in the texts of *Rasashastra*. All of them are compounds of calcium and fluorine. However it is customary to consider tourmaline as *Vaikranta*.

As the naturally obtained form of *vaikranta* cannot be assimilated by the body in its crude form, it has to be converted into *bhasma* after *shodhana*. *Bhasmas* are tried to be identified as simple chemical entity which narrows the concept of *bhasma*. The *bhasmas* are found to be a highly complicated chemical structure. Many modern pharmacological concepts can be seen in a single *Ayurvedic bhasma*. These pharmacological techniques are derived to make the drug possible to administer in a particular stage of a disease.

Vaikranta is mainly available in two forms i.e. black variety and multi-coloured variety. Black variety is commonly used for medicinal purpose and multi-coloured variety is used for ornamental purpose. This study aims in developing a standard operative procedure for *Bhasma* preparation of two varieties of *Vaikranta* and identifying their organoleptic characters.

MATERIALS AND METHODS

Procurement of Raw Materials- The authenticated black and multi coloured variety of tourmaline were obtained from Gujarat and Kerala respectively.

Methods - The preparation of *Vaikranta bhasma* was carried out in *Rasasastra and bhaishajya kalpana* practical hall of SDM college of Ayurveda Udupi as per the reference mentioned in classics of Ayurveda.

Shodhana¹ - The roughly pounded *ashuddhaVaikranta* was tied in *pottali*, suspended in *dolayantara* and subjected for *swedana* in *Kulattha kwatha* for 3 days. The *pottali* was completely immersed in *kulattha kwatha* ensuring that the bottom of the *pottali* was not in contact with the bottom of mud pot. After the *Shodhana* the drug was washed using hot water, dried and stored in air tight container. The second sample i.e. Multi coloured *Vaikranta* was also purified in similar way. **Marana²**: According to *Rasaratnasamuchaya*, *Marana* of *Vaikranta* is carried with equal quantity of purified *Gandhaka* and is triturated with *Nimbu swarasa* and subjected to eight *Gajaputa*. As per the opinion given by the practitioners the quantity of *Gandhaka* added here was re-

duced to half in second *puta* and one fourth from third to fourteenth *Puta*. As the *Bhasmasiddhi Lakshanas* were not observed by eight *putas*, it was subjected to 14 *putas*. Sample 1 (Table no. 1): 250 g of *shuddhaVaikranta* and 250 g of *shuddhaGandhaka* was taken and *bhavana* was done using *nimbu swarasa*. After *mardana*, *chakrikas* were prepared and kept for drying. It is then placed in *sharava samputa* and is subjected for *puta* at 400 °C using muffle furnace. After *swangasheeta*, the *sharava* was taken out. The product thus obtained was mixed with 137g of *gandhaka* i.e. half of the quantity of product obtained after first *puta*. *Bhavana* was given with *nimbu swarasa*. Later, the process of making *chakrikas* followed by *sharavasamputeekarana* was repeated. The second *puta* was given at a temperature of 600°C. After *swangasheeta*, 280 g of the product was collected which was grey but brittle in consistency. During third *puta*, the quantity of *gandhaka* added was 1/4th of the product obtained after the second *Puta* i.e. 70g which was followed by *bhavana* using *nimbu swarasa*. The process of preparation of *chakrikas* and *sharavasamputeekarana* were repeated. *Puta* was given at a temperature of 700°C. After cooling, the *bhasma* collected was observed to be grey in colour which was darker when compared to the *bhasma* obtained after second *puta*. It was brittle in consistency.

The process carried out during third *puta* was repeated till 14th*puta* by adding *gandhaka* equivalent to 1/4th quantity of *bhasma* obtained in the preceding *puta*. In classical references only 8 *putas* have been mentioned for *vaikranta bhasma*. But, practically the *bhasmasiddhi lakshanas* were appreciated after the completion of 14th*puta*. Initially, the process of *Mardana* was difficult due to the hardness of *vaikranta*. With the subsequent *mardana* the hardness was found to be reduced. The smell of *Gandhaka* was appreciated during *mardana*. The same method is followed for sample2 of *vaikranta bhasma*. (Table no. 2)

OBSERVATIONS AND RESULTS:

Temperature maintained throughout the procedure of *Shodhana* was 100°C. Frothing was seen at the surface of the liquid during the procedure. Addition of *kulattha kwatha* was done when the level of *Kulattha kwatha* in *dolayantra* reduces. *Kulatthakwatha* was changed every day. At the end of *Shodhana* there was no difference in the quantity of product obtained in both the samples. During *Marana* about 7 hrs of *Mardana* was required to obtain the consistency for the preparation of pellets. During the trituration for grittiness was appreciated in the initial stages which reduced in subsequent *bhavanas*. The

temperature maintained for the first *puta* for both the samples were 400°C where as for the second *puta* it was 600°C. The temperature maintained from 3rd to 14th *puta* for both the samples were 700°C. Loss in the products and change in colour were appreciated in succeeding *putas* as mentioned in table number 1 and 2. The fineness was also seen increasing in the successive *putas*. The *Bhasma* obtained at the end of the 14th *puta* of both the samples were mud brown in colour. At the end of the procedure loss of 60g and 50g were seen in sample 1 and 2 from the initial quantity.

Table 1: Observations during *VaikrantaMarana* procedure (sample 1)

No of <i>Puta</i>	Quantity of <i>Gandhaka</i> added(g)	Quantity of <i>NimbuSwarasa</i> added(ml)	Weight after each <i>Puta</i> (g).	Colour	Temperature maintained (°C)
1	250	210	250	Black	400
2	135	220	280	Light grey	600
3	70	220	290	Dark grey	700
4	72.5	230	270	Light brown	700
5	67.5	225	268	Light brown	700
6	67	225	278	Almond coloured	700
7	69.5	230	291	Almond coloured	700
8	72.75	230	279	Brick coloured	700
9	69.75	235	256	Brick coloured	700
10	64	225	255	Mud brown	700
11	63.75	225	251	Mud brown	700
12	62.75	220	232	Mud brown	700
13	58	200	211	Mud brown	700
14	52.75	220	190	Mud brown	700

Table 2: Observations during *Vaikranta Marana* procedure (sample 2)

No of <i>Puta</i>	Quantity of <i>Gandhaka</i> added (g)	Quantity of <i>NimbuSwarasa</i> added (ml)	Weight after each <i>Puta</i> (g).	Colour	Temperature maintained(°C)
1	250	205	240	Black	700
2	120	210	245	Light grey	700
3	122.5	220	250	Dark grey	700
4	62.5	215	255	Light brown	700
5	63.75	225	278	Light brown	700
6	69.75	225	290	Almond coloured	700
7	72.5	230	285	Almond coloured	700
8	71.25	230	280	Brick coloured	700
9	70	235	260	Brick coloured	700
10	65	230	250	Mud brown	700
11	62.5	230	265	Mud brown	700
12	66.25	230	227	Mud brown	700

13	56.5	200	210	Mud brown	700
14	52.5	200	200	Mud brown	700

DISCUSSION

Vaikranta, the second *maharasa* mentioned by *Rasavagbhata* is identified as tourmaline by many scholars. Market samples in the current era avails different coloured tourmaline but the blackish variety is usually used for therapeutic purposes, as it helps in *dehasiddhi*.³ *Ayushya*, *medya*, *sakalaamayaghna* are some of the properties of *vajrabhasma* explained in classics. Even with the high therapeutic efficacy one cannot afford the use of *Vajrabhasma* in day to day practice. So the study of *Vaikranta* is important owing to its properties similar to that of *Vajra*.

The classification of minerals as *maharasa*, *uparasa* etc is not only based on mineralogical characters but also on *rasayana karma* of the drugs. In this classification, minerals under *maharasa* exhibit more *rasayana* action than others. *Vaikranta* is the second drug mentioned under the category of *Maharasa*, which indicates its *rasayana guna*. The *rasayana guna of Abhraka* can be differentiated from *Vaikranta* as the former is known to impart strength to *ojas* and *prana* whereas the latter is effective on structural components of the body.

Pharmaceutical study - Like any other minerals, *vaikrantha* also has blemishes which can lead to toxicity if used without purification. Hence, *shodhana* followed by *marana* is carried out for two sample of *vaikranta* to make it therapeutically fit. *Hayamootra*, *kulathakwatha*, *kodrava*, *kshara*, *gomutra* etc are the different *dravadravyas* described in the classics. Among them *kulathakwatha* is taken for the study, as it possesses *bhedhana* property and can effectively reduce the hardness of *vaikranta*. After *shodhana* there was no loss in the quantity of the product. The reason for the same could be the size reduction of the sample before *shodhana*. As the drugs were hard in nature the size could be reduced only to coarse form. As there were no fine powders of the sample before *shodhana* no loss was appreciated.

After *shodhana* the hardness of the samples were slightly reduced. It could be powdered further before subjecting it to *mardhana* for the preparation of *chakrikas*. Pellets should be of uniform size for the uniform distribution of heat. As the number of *puta* increased the samples turned more brittle and the reduction was more effective. This could be due to the breakage of strong bonds of the molecules. The change in colour could be due to the chemical reactions occurring due to the addition of *drava dravyas*, *gandhaka* and heat subjected during the *puta*. Successive *putas* showed gradual loss in the product which may be attributed to handling of the product during *mardana* and reactions during *puta*. The absence of lustre signifies the fine nature of *bhasmas* which was attained after the 14th *puta*.

CONCLUSION

Vaikranta is one among the *maharasa* and *uparasa*. Knowledge about *vaikranta* was known since the time of *Vedas*. The first reference about *vaikranta* is seen in *Koutilyas Arthashastra*.⁴ *Shodhana* helps in the purification of the drug, makes drug more soft and fragile, which helps in the further process like *marana*. *Dola yantra swedana* and *nirvapa* are the main 2 methods of purification of *vaikranta*. *Marana* is performed to convert the *vaikranta* into *Bhasma* for easy assimilation in the body. *Vaikranta marana* can be performed by *puta* method only. *Gandhaka* is required for the *marana* of *vaikranta*. 14 *puta* was carried out in muffle furnace at a temperature of 700°C. The colour of two *vaikrantha bhasma* obtained is almost similar i.e. mud brown colour. The samples can be further subjected for analysis to identify the similarities in their chemical entities and experimental studies would validate the therapeutic efficacy stated in the classics.

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Figure 1: Samples of Vaikranta



**Sample 1- Ashodhita
Multi coloured Vaikranta**



**Sample 2- Ashodhita Black coloured
Vaikranta**

Figure 2: Shodhana of Vaikranta (Same procedure for both Sample 1 and 2)



STEP - 1: Preparation of Kulattha kwatha



STEP - 2: Preparation of Kulattha kwatha



Preparation of Pottali



Dolayantra Swedana

Figure 3: Marana of Vaikranta



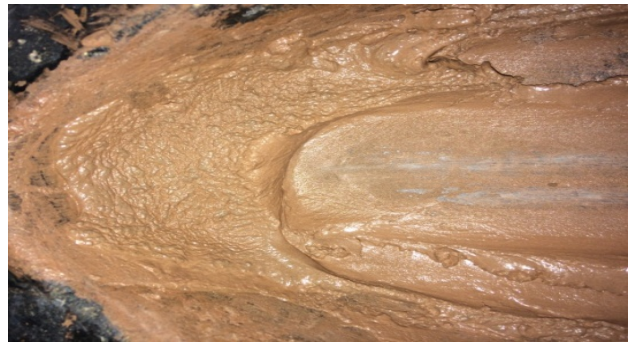
Shoditha Gandhaka



Shoditha vaikranta



Addition of Gandhaka during Mardana



Mardana



Preparation Chakrika of Vaikranta



Sharava Samputa



Vaikranta Bhasma From Sample 1



Vaikranta Bhasma From Sample 2

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