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COMPARATIVE STUDY OF KASISABHASMA AND ANNABHEDI CHENDURAM WITH REFERENCE TO THEIR PHARMACEUTICAL STUDY

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ABSTRACT

The ancient texts of *Rasa Shastra* classified the minerals as *Maharasa*, *Uparasa*, and *SadharanaRasa* on basis of their importance in mercurial processing. '*Kasisa'* is described under *Uparasa* group by Rasacharyas. It is one among the Iron containing minerals. While reviewing the Modern literature, we find medicinal use of *Iron* after 17th century by the discovery of food rich Iron. '*Kasisa'* is an *iron* compound which is presented in this article in two forms i.e *Kasisa bhasma* and *Annabhedi chenduram*. Annabhedi chenduram is siddha medicine. Like *Ayurveda*, *Siddha* is also a traditional medical system of India. It is of *Dravidian* origin and has its entire literature in Tamil language. Many research programmes were conducted on *Kasisa Bhasma* of Ayurveda and *Annabhedi Chendooram* of *Siddha medicine* for the management of *Anaemia*. So far no comparative study is taken up to identify the supremacy between the two. So comparative study with respect to pharmaceutical view studied in this article. *Kasisa Bhasma* and *Annabhedi Chendooram* contain number of similarities both in terms of composition and preparation with minimum variations.

KEYWORDS: ‘Kasisa, *Annabhedi Chendooram, Siddha, Kasisa Bhasma.*

INTRODUCTION

RasaShastra, the Mercurial system deals with minerals, metals, precious stones, certain poisons for manufacturing special formulations to combat chronic and difficult diseases. The practice of Mercurial system can be divided into two traditions i.e *Siddha sampradaya* and *Nathsampradaya*. *Nathsampradaya* flourished in North of India whereas *Siddha sampradaya* spread in Southern parts of India.[1]

‘*Kasisa’* is described under *Uparasa* group by Rasacharyas. It is one among the Iron containing minerals.

While reviewing the Modern literature, we find medicinal use of *Iron* after 17th century by the discovery of food rich Iron. In 1936, new theory was demonstrated that *inorganic Iron* is present in *Haemoglobin*. This made the *Iron* therapy still popular.

‘*Kasisa’*which is an *iron* compound is presented in this article in two forms i.e *Kasisa bhasma* and *Annabhedi chenduram*. Both contain number of similarities both in terms of composition and preparation with minimum variations. Both the drugs have shown high rate of efficacy in controlling *Anaemia*. Both medicines deliver the drug in nano particle size to impart immediate effect clinically with negligible untoward effect

Siddha-Annabhedichenduram

The Siddha system is basically a regional variant of Ayurveda, conditioned by the local Tamil culture and tradition.

Chenduram[2]

The word ‘Chenduram’ is used for ‘Sindura Kalpana’. As the obtained medicine is red in colour and in powder form , hence the name as ‘Chenduram’. In Ayurveda,the final product obtained in sindura preparations done in kupipakwa method eg. Rasasindura, Mallasindura are brick red in colour. Whereas in Chenduram process of Siddha it is not compulsory for heating the product as well as presence of Parada and Gandhaka.

Annabhedi[3]

It literally means that it could digest the rice easily. Annabhedi is in ‘*Uparasa’*varga in Siddha literature. Abundant Siddha literature are available about its uses, the methods of purifications and methods of preparations.

Annabhedi Chenduram[4]

Purified Annabhedi is subjected to Mardana with Nimbu Swarasa, and made into Chakrikas; which are then dried in sun. Dried chakrikas are kept in Sharavasamputa and subjected to Laghuputa. The procedure is repeated until it attains dark red colour.

Indications: Jwara, Raktalpata, Pravahika, Kamala.

Dose: 100-200mg.

Anupana: Madhu.

Pharmaceutical study

- Identification and Collection of raw material.
- Purification of raw material.
- Preparation and strict observational study of *Kasisabhasma* and *Annabhedichenduram*. Drug is to be prepared by the reference of *BhrihatRasaRajaSundar*, *Rasatarangini*; *SiddhaVaidyaThirattu*, in P.G.Dept.of Rasa-shastra, Dr.N.R.S.Govt. Ayurvedic College, Vijayawada-2.A.P.

MATERIALS

KASISA {English Green vitriol ,Scientific Ferrous Sulphate ($FeSO_4$, $7H_2O$)}.

Shodhana of Kasisa

There are different methods explained in the classics for *Shodhana* of *Kasisa*.

- *Bhavana* method
- *Swedana* method
- *Nimajjana* method

***Bhavana* method**

- Subjecting it to one *Bhavana* with *Bhringaraja Svarasa*[5] purifies *Kasisa*.
- Subjecting it to three *Bhavana* with *Bhringaraja Svarasa* purifies *Kasisa*.[6]
- Giving *Bhavana* with *Nimbu* or *Jambiri Nimbu Svarasa* purifies *Kasisa*.

Swedana method

Subjecting it to *Swedana* for three hours with *Bhringaraja Svarasa* or *Triphala Kwatha* or *Nimbu Svarasa*.

Kledana or Nimmajana method

By just keeping it soaked for one day in *Bhringaraja Swarasa.or* in bile of animals or menstrual blood of women.

Kasisa Marana

Description about *Marana* process of *Kasisa* is not found in classical textbooks of *RasaShastra*. Only *Shuddha Kasisa* is being used in medicinal preparations directly. Description about *Kasisa Marana* is found in latest *RasaShastra* texts like *Rasamrutam*, *RasaTarangini* etc.

Different methods of *Kasisa Marana* are as follows,

1. The *Shodhita Kasisa* is given *Bhavana* with *Nimbu Swarasa*, *Chakrikas* are prepared and dried. After drying, they are kept in *SharavaSamputa* and *Sandhibandhana* is done. It is subjected to *puta* with ten *Prastha* cow dung cakes. The process is repeated till the *Bhasma* becomes *Niramla* and attains *Gairika Varna*.[7]
2. The *Shodhita Kasisa* is given 7 *Bhavana* with *Kanji, and* subjected to *Laghuputa*. The process is repeated till the *Bhasma* becomes *Niramla*.[8]
3. The *Shodhita Kasisa* is given *Bhavana* with *Snuhi Patra Swarasa* and subjected to *Laghuputa*. The process is repeated till the *Bhasma* becomes *Niramla*.[9]
4. The *Shodhita Kasisa* is given *Bhavana* with *Bhringaraja Swarasa*, It is subjected to *puta*. The process is repeated thrice to get *Niramla Kasisa Bhasma.*[10]

Table I: Dravya[11 & 12] used for pharmaceutical studies.

Snuhi **Botanical Name*:*** *Euphorbia neriifolia Linn*. **Family** : Euphorbiaceae **Ayurvedic Properties** *Rasa : Katu* *Virya :Ushna* *Vipaka : Katu* *Guna : Laghu Tikshna* *Doshaghnata :KaphaVatahara*	***Nimbuka*** Lemon is used extensively in *Ayurveda* and *Siddha*. **Botanical name**: *Citrus limon (Linn)* **Family** : Rutaceae **Ayurvedic properties**: *Rasa – Amla (sour)* *Guna– Laghu, Teekshna* *Vipaka –Amla* *Veerya – Ushna*

METHOD

Science of pharmacy in Siddha is known as Gunapadam.

The present study deals with the comparative evaluation of Kasisa in the form of Kasisa Bhasma preparation dealt in Ayurveda and Annabhedi Chendooram preparation of Sidhha medicine.

I) Pharmaceutical study of Kasisa Bhasma.

Kasisa Bhasma is prepared by Khalviya Rasayana process widely used for treating Pandu in Rasa Shastra.

Importance of shodhana: Most of the raw materials used in rasashastra are obtained from the earth so there is so much chance of impurity, toxicity, heterogeneous qualities, mixing of other substances and unwanted qualities to large extent.

Definition

Shodhana is a combination of processes, which removes unwanted part from the drug, which controls the unwanted effects or toxic effects if any present in the drugs and enhances the properties of the drugs, which make the drugs suitable for desired actions.

Maraṇa (Incineration)

Bhasma is the term used to indicate the final product after marana. The process of marana consists of subjecting the matererial to high temperature so that it turns into ash and it looses all its properties which it possesses in its original state. This final product is suitable for better absorption and faster relief.

The aim of the pharamaceutical study is to prepare a standard & potent medicine**.**

Table II: Coparative pharamaceutical study between Kasisa bhasma and Annabhedi Chendooram.

pharamaceutical study of Kasisa bhasma	**pharamaceutical study of Annabhedi Chendooram**
The whole study is conducted in 4 steps ❖ Preparation of *Nimbu svarasa* ❖ Shodhana of Kasisa ❖ Preparation of *Snuhipatra svarasa* Marana of Kasisa **I) Kasisa Shodhana** Procurement of *Kasisa* 2 kg of *Kasisa* was procured from the local market of Vijayawada town.(Sri Aanjneya ,Herbs& Drugs**)** Cost of Kasisa – 30 Rs.per kg.	**Ingredients:** Purified Kasisa – 1000gm *Nimbu swarasa* – sufficient quantity. Date of commencement – 11.07.2011 Date of completion – 14.07.2011 Materials required**:-** Khalwa yantra, earthen pots (saraavas), multani mitti, cloth, vanyopalas. **Procedure** ➢ Purified Kasisa of 1kg is taken in a khalwa yantra.

Physical Characters of Kasisa

Colour	Green & Glossy
Texture	Crystalline
Odour	Metallic

MATERIALS AND METHODS

Materials Kasisa **,***Nimbu Svarasa*

Procedure**:** as per Bhihat Rasaraja Sundar.

Ingredients

Raw Kasisa - 2kg

Nimbu swarasa - sufficient quantity

Date of commencement – 23.06.2011

Date of completion – 25.06.2011

Method:

- 2kg of Kasisa raw material is taken in an iron mortar and powdered coarsely and shifted to Khalwa yantra. *Nimbu swarasa* is added till the whole mixture is fully immersed. Trituration of Kasisa is done slowly to avoid spilling out. 2-3hr bhavana was done. When the mixture becomes semisolid, chakrikas were prepared, and dried.

Precautions:

1. Chakrikas should be dried well.
2. Trituration of Kasisa is done slowly to avoid spilling out.

Observations:

1. Trituration of Kasisa is done for one day.
2. Quantity of *Nimbu svarasa* added – 350 ml.
3. Weight of Kasisa before shodhana - 2000gm

Weight of Kasisa after shodhana - 1950gm

II).Kasisa Marana (Ref:Rasa Tarangini)

Ingredients:

Purified Kasisa – 1000gm

Snuhipatra swarasa – sufficient quantity.

Date of commencement – 27.06.2011

Date of completion – 30.06.2011

Materials required:-Khalwa yantra, earthen pots(saravas), multani mitti, cloth, vanyopalas.

Procedure

- Purified Kasisa of 1kg is taken in a khalwa yantra.
- *Snuhipatra swarasa* of approximately 200ml is added slowly and triturated. Trituration is done for about 2-3hrs so that the whole material becomes smooth. Then chakrikas are made on a plastic sheet.

(Measurement of chakrikas:- Diameter –3 inch. **;**Thickness– ½ cm.**)**

- Chakrikas are dried in the Sun for a day.
- The next day chakrikas are arranged in 3 saravas of 2 layers in each sarava. A Layer of sandhi bandhana is done to the sharavasamputa .After sealing, the saravas
- Nimbu swarasa of approximately 200ml is added slowly and triturated.
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- Then chakrikas are made on a plastic sheet.

Measurement of chakrikas:- Diameter –3 inch;Thickness – ½ cm.)

- Chakrikas are dried in the Sun for a day.
- The next day chakrikas are arranged in 3 saravas of 2 layers in each sarava. A Layer of sandhi bandhana is done to the sharavasamputa . After sealing, the saravas are kept in Sun for the whole day for drying. The next day, incineration is done with total 30vanyopalas of 20 vanyopalas below & 10 vanyopalas above the saravas.
- Fire was lit on four sides and waited for all the vanyopalas to burn completely.
- It took almost 1 – 1 ½ hrs for complete burning.
- The saravas are left overnight to get cooled.

Precautions

1. Care should be taken not to spill out while triturating mixture with *nimbu swarasa*.
2. All the chakrikas should be similar in size & shape.
3. Fire should be lit on four sides to allow uniform burning of vanyopalas.

Observations

1. After triturating with Nimbu swarasa, the whole mixture turned smooth.
2. The colour of chakrikas is greenish grey.
3. The collected chenduram after incineration process is brownish red in colour.
4. It is IshadAmla in taste.

Before incineration, Weight of Kasisa – 1kg

After incineration,Weight of collected chenduram – 360gm

are kept in Sun for the whole day for drying. The next day, incineration is done with total 30vanyopalas of 20vanyopalas below & 10 vanyopalas above the saravas. Fire was lit on four sides and waited for all the vanyopalas to burn completely.It took almost 1 – 1 ½ hrs for complete burning.The saravas are left overnight to get cooled. **Precautions** 1. Care should be taken not to spill out while triturating mixture with nimbu swarasa. 2. All the chakrikas should be similar in size & shape. 3. Fire should be lit on four sides to allow uniform burning of vanyopalas. **Observations** 1. After triturating with *snuhipatra swarasa*, the whole mixture turned smooth. 2. The colour of chakrikas is greenish grey. 3. The collected bhasma after incineration process is brownish red in colour. 4. It is IshadAmla in taste. Before incineration, Weight of Kasisa – 1kg After incineration, Weight of Kasisa bhasma – 370gm. **2nd puta** Weight of bhasma – 370 gm Snuhipatra swarasa – sufficient quantity. Date of commencement – 04.07.2011 Date of completion – 07.07.2011	

TableIII showing organoleptic characters of Kasisa bhasma.

Sample Properties	***Raw Kasisa***	***Shuddha Kasisa***	***Kasisa bhasma***
Colour	Green	Greenish white	Brownish red
Taste	Astringent	Metallic	Tasteless
Odour	Metallic	Metallic	Metallic
Consistency	Soft	Soft	Soft

Table IV showing observations of Kasisa Marana.

Puta	***Weight of Kasisa before puta***	***Weight of Kasisa after puta***	***Weight loss***	***Quantity of Snuhipatra Svarasa***	***Colour of Kasisa after puta***	***Taste of Kasisa after puta***
1	1000 gm	370 gm	630 gm	200ml	Brownish red	Ishad Amla
2	370 gm	350 gm	20 gm	60 ml	Brownish red	Niramla

Tests of Bhasma

Ancient scholars has mentioned some parameters for assessment of bhasma, whether it is ready to be used on patients or not. Basically these tests are designed to detect the fineness of

the bhasma and to detect whether the conversion is complete or not. These tests can be grouped as.

(1) General (Samanya) test.

(2) Specific (Visesha) test

I. General Tests

(1) Rekhapurnatva – Rekha means line pattern of ridges tips of fingers. Purnatva means filling.

(2) Varitaratva –When the bhasma is slowly sprinkled over steady surface of water, it floats over it.

II. Specific Test

Rasa pariksha – pinch of Bhasma is tasted. It is advised for Kasisa Bhasma; as Niramlatva(tastelessness) is criteria.

TableV: showing observations of Bhasma Pariksha.

Parameter	***Kasisa Bhasma***
Varna	Brownish red
Sparsha	Soft
Gandha	Metallic
Nirdhuma	+
Varitara	+
Rekhapurnata	+
Specific	
Amla Rasa pareeksha	Niramlatva

II)Pharmaceutical study of Annabhedi Chendooram

TableVI: Showing Observations Of Annabhedi Chenduram.

Puta	Weight of Kasisa before puta	Weight of Kasisa after puta	Weight loss	Quantity of Snuhipatra Svarasa	Colour of Kasisa after puta	Taste of Kasisa after puta
1	1000 gm	360 gm	630 gm	200ml	Brownish red	Ishad Amla

DISCUSSION AND RESULTS

'*Annabhedi chenduram'* as it is called, is nothing but *Kasisa sindhura*. Since it is red in colour, it is termed as Sindhura.

The direct use of Kasisa has been advocated in *Brihat rasa raja sundara*, where in the purified Kasisa is triturated with lemon juice and emploid in *Pandu*. The same practice has

been in vogue in Siddha system also but it is called as '*Annabhedi chenduram*', only when it is turned to red in colour. Apart from the textual characteristics of the bhasma, Acharya Yadavji Trikamji in his *Rasamrutam* has added a specific criteria to *Kasisa bhasma* that it should become *'niramla*'- *"Punahpunah pute deyo yavad bhasma niramlakam*". This is quantified by litmus paper test. The niramlata has not been given much importance in the practice of making the Annabhedi chenduram.as per the clinical study whereas dark red colour criteria is much more important in *Siddha*.

Table VII: Determinationof pH.

Sl No	Name of Sample	pH value
1	pH of shuddha Kasisa	2.32
2	pH of Kasisa bhasma	7.17
3	pH of Annabhedi chenduram	6.9

CONCLUSION

Kasisa bhasma as per the standards set by Yadavji Trikamaji Acharya, should be tasteless and especially it should not have sour taste. *Annabhedi chenduram*, a *Siddha* preparation has no such criteria set, and this is prepared in ***one puta*** while it took ***two putas*** for achieving the state of ***Niramlata.*** *Snuhipatra swarasa* bhavana has given quicker achievement of this criteria.

The pH of *Kasisa bhasma* is more towards basic while that of *Annabhedi chenduram* is towards acidic.

RAW MATERIALS FOR KASISA BHASMA AND ANNABHEDI CHENDURAM

RAW KASISA

NIMBUKA

SNUHI

PHARMACEUTICAL PROCESS OF KASISA BHASMA AND ANNABHEDI CHENDURAM

SHODHITA KASISA

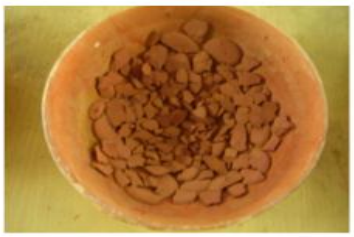
BHAVANA IN KHALVA

CHAKRIKAS

PUTA

INCINERATION

KASISA BHASMA



ANNABHEDI CHENDURAm

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