



International Journal of Indian Medicine

www.ijim.co.in

ISSN: 2582-7634

Volume 3, Issue -1



I J I M

INDEXED

January 2022



International Journal of Indian Medicine

Access the article online



International Category Code (ICC): ICC-1702 International Journal Address (IJA): IJA.ZONE/258276217634

CRITICAL REVIEW OF KUPIPAKWA RASAYANA AND PROBABLE THEORIES BEHIND

KUPIPAKWA RASAYANA:

Patil D¹, Chondikar S², Adhav A³,

1. PG scholar, Rasashastra and Bhaishajya kalpana, Shree Saptashruni Ayurvedic Mahavidyalaya. MH
2. HOD of Rasashastra and Bhaishajya kalpana, Shree Saptashruni Ayurvedic Mahavidyalaya. MH
3. Assistant professor, Rasashastra and Bhaishajya kalpana, Shree Saptashruni Ayurvedic Mahavidyalaya. MH

Abstract:

Rasashastra word itself suggests Mercurial Science or Parada Vijnana. In other words, the study of science of Metals and Minerals. Different Shodhana procedures adapted to detoxify metals & minerals like Svedana, Nirvapa, Dhalana etc. and Parada is very usefull in Dhatu vada as well as in Deha vada. The utilization of Rasa Shastra gives Dharma, Artha, Kama and Moksha (Sapinda moksha). In traditional system of medicine, the use of Rasa Shastra and Rasaushadhi are the revolutionary development. Basically, Rasa Shastra deals in metallic and herbo mineral preparations with various kalpanas including Kupipakwa Rasayana. Different procedures like Bhasma, Kupipakwarasayana, Parpati, Pottali for converting metals and minerals into Atyanta sukshmabhaga inturns resulting into bioavailable form (easy absorption of the drug in GIT). Among these, Kupipakvarasayana is having Rasayana effect more as its name itself suggests

Key words: Kupipakwa rasayana, Rasaushadhi, Parada

Corresponding Author:

Dr. Divya Patil , PG scholar, Rasashastra and
Bhaishajya kalpana, Shree Saptashruni
Ayurvedic Mahavidyalaya. Divyapatil2495@gmail.com



How to cite this article: Patil D, Chondikar S, Adhav A, Critical Review Of Kupipakwa Rasayana And Probable Theories Behind Kupipakwa Rasayana:. Int J Ind Med 2022;3(1):47-56

INTRODUCTION:

Kupi pakwa Rasayana is a preparation where parada is processed with other dravyas in kupi with kramagni. In this, prathvi and ap pradhana dravya will get agni samskara for specific long period of time and it is transformed and attained into laghu, sukshma guna along with tejopradhanaguna by which the drug can easily enter into Sukshma Srotases and helps in very fast and effective action of the drug in the body. In other words it causes Srotoshodhana and Rasayana effect resulting into Dhatuposhana. By these quality dravya matra also very minimal in dose to treat the disease.¹ Kupipakwa Rasayana Kalpana is also known as Sindhura Kalpana. It is made up of four words that is kupi- glass bottle, pakwa- heating or paka, rasa- parada, aayana- sthan. Kupipakwa method is a special procedure in which kajjali is main ingredients. The role of temperature is very important to get the desired and beneficial effect in the final product. Many observations and precautions are involved in the process of Kupipakwa Rasayana. In this, mercury (Hg) known as parada has been widely used and other drug is sulphur known as Gandhaka has been also used frequently. There are several chemical changes are seen in the finished product. Now a day, with Parada and Gandhaka there are chemical reactivity are well known.²

AIMS AND OBJECTIVE: The main aim of this present article is to be summarised the detail knowledge regarding the classification, types of

this kalpana, method of preparation and Probable theories of Kupi Pkwa Rasayana Kalpana

KUPI PAKWA RASAYANA

The medicinal preparation wherein Parada is done paka by giving agni (heat) in a Kacha Kupi (glass bottle) resulted into Rasayana effect is called Kupi Pakwa Rasayana.

Classification of Kupi Pakwa Rasayana:³

1. Depending upon the Dravyas used for the preparation.

a) Sagandha b) Nirgandha.

A. SAGANDHA

- a) Parada + Gandhaka – Rasa Sindoorā.
- b) Parada + Gandhaka + Dhatu – Tamra Sindoorā, Rajata Sindoorā
- c) Parada + Gandhaka + Adhatu– Malla Sindoorā, Tala Sindoorā, Shila Sindoorā.
- d) Parada + Gandhaka + Adhatu + Swarna – Poorna Chandrodaya Rasa.

B. NIRGANDHA: Rasapushpa, Rasakarpoora etc

2. Depending upon the Region of collection of Medicines.

- a) Galastha or Kanthastha – E.g. Rasa Sindoorā.
- b) Talastha or Adhastha – Eg: Samira Pannaga Rasa, Rasa Sindoorā, Svarna vanga.
- c) Ubhayastha – Poorna Chandrodaya. Manikya Rasa.

3. Depending upon the procedure of preparation.

- a) Antardhooma Vidhi – Talastha – Rasa Sindoorā.

b) Bahirdhooma vidhi – Kanthastha – Malla sindoor, Rasa Sindoor.

Procedure: The whole procedure of KPR is divided into 3 steps

1. Purva Karma 2. Pradhana Karma 3. Paschat Karma

PURVA KARMA:⁴ Purva karma provides previous step for the Pradhana karma, the following should be considered in this step.

1. **Purva Karma:** During Purva Karma following points are to be considered. a. Collection of

Equipments: Bhatti 14: The height and width of the Bhatti should be 18 angulas, shaped like Ant hill with a hollow space of 5 Gulpha inside and should have many holes in its lower portion. There should be an opening for introducing fuel, of about 12 angulas. Bhatti can be made with the fire proof bricks which minimizes the loss of heat and fuel consumption.

Valuka yantra:⁵ A Loha bhanda with 1 Vitasti pramana having narrow base and wide mouth depending on the size of the Kupa should be prepared with 2 handles. It should fill 5 Adhaka sand and have a central hole of 2 to 2.5 cm at the bottom, which should be closed with Abhraka patra before keeping the Kupa during heating.

Muffle Furnace: A electrical vertical muffle furnace outer casting is made of double walled mild steel sheet, with inner heating element chamber is made of insulation bricks. Heating element made of Kanthal A-1 coil which surrounds the heating element chamber, and

backed by high temperature Ceramic fibre blanket which avoids loss of heat. The temperature control unit consists of Energy regulator, fitted in front of the furnace with two pilot lamps. The apparatus is complete with K thermocouple with CR-AL type sensor, silver thermal fuse, and main lead with power plug. To work on 4.5 KW /230 V/ Single phase, maximum Temperature range 1200°C.

Valuka(Sand):⁶ Shuddha Valuka (Sand) should be filled into the Valuka yantra.

Kupa:⁷ Sinduras were prepared in Andha mushas / Kupa made with Hema, Tara, Ayas / Mrittika. Any material can be used but they should sustain intense heat. After 10th century

when glass bottles were invented it was used for the medicine preparations. Now a days beer bottles of 650ml capacity with the neck 1-1 ½” length and moderate thickness is used. b. Kupa

Nirmana(Preparation of kupa): As per the textual reference Kupa pakwa rasa nirmana vijnana, the Kupa which is used in Valuka yantra should be covered with the mud smeared cloth which can withstand intense heat. Mud which is pandura varna, obtained in mass, krishna or swetha varna which sustains heat can be used. Valmika mrittika or potters mud can also be used. It is advised to prepare kapad mitti from, husk -2 parts, cotton -1 part, mud - 3 parts, fibres, grinded and kept soaked in water for 7 days and then used to cover the Kupa.

Pyrometer:⁸ Two types of Pyrometer were available –

1. Which records the Temperature over the fuel.
2. Which records Temperature of the sand by keeping the sensors in Valuka Yantra.

Mudra (Cork): Corking material is called Mudra. After getting all siddhilakshanas, complete evaporation of fumes and cessation of flame, Kupi mouth is closed with cork and is called Mudrana or Corking.

- 1) Madanamudra
- 2) Hata mudra

Others:

- a) Copper coin to test escape of mercury.
- b) Torch to see the bottom of kupi.
- c) Electric blower to ignite or to burn the coal.

Now a day's gopichandana or clay is used for this purpose. The mud smeared cloth applied to the kupi from bottom to mouth and should be well dried. Whole length of the Kupi can be applied with kapad mitti as it prevents breakage of kupi during heating.

C. DRAVYA SHODHANA(PURIFICATION OF INGREDIENTS):⁹

The raw materials should be identified first for the genuinity and purity. Every raw material should be purified according to the method prescribed in classics. Again purified ingredients should be tested according the Samyak Shuddha lashkanas described in the texts.

D. KAJJALI NIRMANA:¹⁰

The quantity of Parada and Gandhaka should be taken according to the reference and trituration

should be done without using any liquid till the mixture becomes lusterless. If it includes other minerals they should be powdered separately and mixed to this Kajjali and again triturated till a homogeneous mixture is formed. The term Kajjali can be used for the prematerial or for the mixture which is used for making Kupi Pakwa Rasayana. Ex. Tala Sindura Kajjali, Rasapushpa Kajjali etc. Even though generally Kajjali has black colour, still the colour of this prematerial depends on the ingredients used. Ex. Red colour Kajjali in Hinguliya Manikya Rasa. Ash colour – in Rasa pushpa etc. If Bhavana is mentioned, it is given after the completion of Kajjali preparation. After Bhavana the mixture should be well dried before filling into the Kupi.

E. KUPIBHARANA (FILLING OF KAJJALI INTO THE KUPI) :¹¹

The Kupi should be filled up to 1/3rd with the Kajjali so that there should be enough space inside the Kupi for melting and boiling of Kajjali and also for the sublimation of compound which is going to be condensed and deposited in the neck and bottom of the Kupi.

F. KEEPING OF KUPI IN VALUKA YANTRA:

Such Kupi should be kept exactly at the centre of Valuka Yantra which is inturn placed in the Agni bhathi and remaining part of the Valuka yantra should be filled with sand up to the neck of the Kupi.

2. PRADHANA KARMA: (HEATING PROCEDURE)

- a. Temperature analysis and Monitoring

- b. Heating pattern / schedule.
- c. Shalaka sanchalana.
- d. Observation of fumes and flames.
- e. Mukha mudrana (Corking of mouth of Kupa).
- f. Swanga Shitalikarana (Self cooling).

a. Temperature analysis / monitoring:

Temperature measurement works as an indicator like magnetic compass in the maintenance of heating pattern.

Ancient Parameters: Traditionally following tests were in practice.

Cotton, dry grass test – Cotton or dry grass kept on the Valuka catches fire and burns then it is considered to be Tivragni.

Rice test – When a Paddy or maize put on Valuka it puffs up- Tivragni.

Modern Parameters: Now a day's Pyrometer with Thermocouples, Thermometers are used for measuring the temperature.

b. Heating pattern / schedule: A few signs and standards of different heating stages of Kupa Pakwa Rasayanas are mentioned by the ancient scholars for deciding proper pachana of the ingredients, through Kramagni paka.

Kramagni pattern is categorized into three stages.

1. Mrudu Agni – 125 -250 C (Initial stage)
2. Madhyamagni – 250 – 450 C (Middle stage)
3. Tivragni – 450 – 650 C (End stage)

I stage Mrudu Agni (125 – 250 c): Stage of melting of Kajjali.

a. In this stage of heating Sulphur fumes starts to come out of Kupa mouth.

b. Material in the Kupa completely gets melted which may be ascertained by inserting cold shalaka in to the Kupa.

c. This heat may be maintained for the prescribed time to allow chemical reactions to start with.

II stage Madhyamagni (250 - 450c): Stage of profuse fuming and boiling of Kajjali.

a. This stage commences from the complete melting of Kajjali and lasts till the starting of formation of Sindura compound.

b. In these stage profuse fumes of Sulphur from the Kupa mouth is obvious.

c. Liquified Kajjali starts boiling.

d. Deposition of fumes at the neck of the Kupa may cause chocking, which may frequently be removed by inserting Tapta shalaka into the Kupa mouth.

e. Boiling of melted material at the Kupa is ascertained by inserting cold iron rod in the Kupa or by visualizing through torch light.

f. It is necessary to prevent the material coming out of the Kupa's mouth by maintaining and controlling heat to desired level.

g. Maintain moderate heat for the prescribed period to ensure burning of extra Sulphur in the product.

h. Same degree of heating is maintained till boiling of Kajjali ceases.

III Stage Tivragni (450 - 650c): Stage of appearance of flame and corking of Kupa mouth.

1. This stage commences from the formation of Sindura compound and lasts up to the completion of Jarana of Gandhaka. The process of formation of Sindura occurs in the middle stage, it means when Kajjali is in boiling stage (Honey comb like appearance), chemical changes occurs and as a result formation of new compound takes place which is called as Sindura Kalpa. Afterwards as heating persists, this newly formed compound sublimates and gets condensed at the neck and mouth of the Kupi.

2. At the end of middle stage Sulphur fumes catches fire and it takes a form of flame. In this end stage flame appears.

3. Slowly the height of the flame starts to raise.

4. When extra Sulphur burns out completely flame disappears and this indicates the completion of Gandhaka Jarana.

5. Redness starts appearing at the bottom of the Kupi which gets more brightened (Sooryodaya laxana). Sindura test becomes positive.

6. Almost disappearance of fumes / flame at the Kupi mouth could be observed which is ascertained by performing Sheeta shalaka test.

7. When Copper coin is placed over the mouth of kupi, white coloured discolouration of Copper coin will be seen.

c. Shalaka Sanchalana: ¹²

Mentioned the use of Hot shalaka to remove blockage of the Kupi mouth by the fumes. Iron rods of different size and shapes were used. Thin

rods (0.5cm) for cold shalaka test and Thick shalaka (1-1.5cm) for Hot shalaka test were used.

During the procedure cold shalaka is used to know whether Kajjali is in powder form or molten form, or in boiling state or in sublimating compound state. Hot shalaka is used for burning the sublimated Gandhaka and Navasagara deposited at the neck region of Kupi which may block the Kupi mouth resulting in breaking of Kupi otherwise.

d. Observation of Fumes and Flames: ¹³

All the characteristics of fumes like colour, smell etc must be observed. It differs according to the ingredients.

Colour – Yellowish, Orange, Bluish or White etc.

Odour – Sulphur, Arsenial etc.

Quantity – Mild, Moderate, Profuse / Dense etc.

Flame: This is also an important factor while preparing Kupi Pakwa Rasayana. Time of starting of flame, its height, colour and its duration are the important features. These important features depend on ingredients used.

e. Mukhamudrana of Kupi (Corking):

It is important to decide the proper time of corking. It is decided by observing following findings.

1. Absence of flame.
2. Absence of fumes.
3. Copper coin test – should be positive.

4. Appearance of Redness in the bottom of Kupi. (Sooryodaya lakshana- positive).
5. The respective colour of the product should be obtained.
6. Dry grass test should be positive.
7. If a Sheeta shalaka is introduced into the Kupi, a white dense fumes appear. It suggests the completion of Gandhaka Jarana. Sheeta shalaka gets coating with different coloured powder according to different compounds. Ex. Blackish in Rasa Sindura, White coating in Rasapushpa etc. This is called positive Sheeta shalaka test; a confirmatory test before corking.
8. Before corking 2-3 inches of sand layer should be moved aside from the neck region to make it cool as the sublimating compound can get well condensed in the neck portion of the Kupi.

Method of Corking:¹⁴

Cork made up of stone or wood or mud is kept over the mouth of the Kupi and then it is covered with the cloth smeared with clay / Multani mitti. For the sealing purpose chalk powder (Khatika), Guda (jaggery), Madhu (honey) etc can be used. There is a controversy regarding heating after corking. Some opine to continue heating as per textual reference for complete period and then leaving for self cooling and while some opine that heating should be discontinued after corking and allow the Yantra to be get self cooled.

f. Swanga Sheetalikarana (Self cooling): After heating for prescribed period, Bhastri is left for self cooling.

3. Paschat Karma (Collection of final product):

- a. Removal of Kupi from the Valuka yantra
- b. Breaking of Kupi & Collection of final product.
- c. Examination of the final product.

a. Removal of Kupi from the Valuka yantra: First sand should be removed from the Valuka yantra and then the Kupi is taken out carefully. Kapadmitti layers are carefully scraped out; Kupi is cleaned with wet cloth. Level of the product inside the Kupi is observed and marked.

b. Kupibhedana (Breaking of Kupi): A thread soaked in Kerosene or Spirit is tied just below (2-3 cm) or above the level of the product and fire is set. Kupi is kept horizontal and rotated so that whole thread gets completely ignited. Little of cold water is sprinkled over it or Kupi can be wrapped with a wet cloth, then the Kupi breaks into 2 halves at desired level. The product which is either Talastha or Galastha from the broken Kupi is collected, powdered well and stored.

c. Examination of the product / Sindura:

Judgment about the colour and shape of the crystal of Sindura can be made by the ingredients of the Kajjali. Similarly smell and colour of flame are the basis for the determination of Sindura compound, to be formed. At last Physico-chemical analysis & NPST Study are done as confirmatory evidences of the Sindura.

DISCUSSION

Importance of Kupi Pakwa Rasayana: Kupi Pakwa Rasayana is having importance among other Kalpanas because of following properties:

1. It is the best Rasayana.
2. Potency of these drugs remains for longer period.
3. It requires minimal Dosage
4. More potent as compared to other pure herbal preparations.
5. When mixed with other drugs, it reduces the dose of other drugs.
6. Due to Yogavahitva- its augmenting effect.
7. Due to Ashukaritva- quicker action.
8. It can cure even Asadhya Rogas.
9. Chemical bond becomes stronger in the following order – Kajjali, Parpati, Kupi Pakwa Rasayana and Pottali.
10. Significance is to introduce properties of Gandhaka into Parada and to create a special medicinal compound.

Probable theories behind Kupipakwa Rasayana:

Law of definite proportion:

Law of definite proportions states, the essential law of chemical combination that every definite compound always contains the same elements in the same proportions by weight; and, if two or more elements form more than one compound with each other, the relative proportions of each are fixed. In the preparation of Suryashekhara Rasa, the end product will be having the same

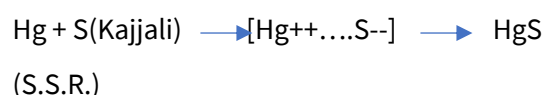
proportion of mercury and sulfur. The compound (HgS) formation takes place with the fixed ratio of 6:1 of Mercury and Sulfur respectively. Stichiometrically HgS contains 86.34% of 'Hg' and 13.66% of 'S'.

Transition state theory:

This theory explains the reaction rates of elementary chemical reactions. The theory assumes a special type of chemical equilibrium between reactants and activated transition state complexes. The activated complexes will convert into a product which allows kinetic theory to calculate the rate of this conversion.

Reactant molecules acquire extra energy to form activated complex upon collision.

This activated complex has high energy and hence extremely unstable and converted into Product.



Reactants Activated complex Final product

Sublimation

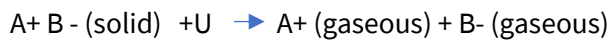
The direct change of material from a solid state to a gas state without turning into liquid in between.

Can also occur in reverse, as crystallization from a vapour. Here in Suryashekhara Rasa preparation from semisolid state HgS turns to gaseous stage and recrystallizes as a final product.

Lattice energy:

The lattice energy of an ionic solid is a measure of the strength of bonds in that ionic compound. It is usually defined as the enthalpy of formation of

the ionic compound from gaseous ions and as such is invariably exothermic. The amount of energy released when cations and anions are brought from infinity to their respective lattice site in a crystal, and is expressed as “U”.



In order to occupy minimum space the ions arrange themselves systematically in an alternating cation and anion pattern. Lattice energy depends on electrostatic forces of attraction, which arises due to the opposite charges on the ions. Mercury is electropositive Whereas sulfur is electronegative. Hence both will react to form an ionic crystal. It is a known fact that the stability of the compound is directly proportional to lattice energy. So it is obvious fact that kupipakwa Rasayanas are very stable formulations.

CONCLUSION

In Rasa Shastra, the practical experience with the preparation of every medicine is more important. Preparation (Nirman) of Kupipakwa Rasayana is one of the typical procedures to adopt. During procedure Shodhana of each ingredient will modify the raw drug into its safe, bioactive, therapeutic form & is an essential preliminary step for all the pharmaceutical procedures of Kupipakwa Rasayanas. The preparations of Kupipakwa Rasayana bear a unique importance due to its quicker action on minimum dose. Heating pattern and preparation of Kajjali are most important to achieve maximal

yield and increase effectiveness of preparation without any side effects or unwanted effects.

References

1. Dr. Chandrabhushana Jha, Ayurvediya Rasa shastra, 2nd Edn, Varanasi, Chaukhambha Surabharati Prakashan, reprint 2006, 173pp.
2. . Sri Sadananda Sharma, Rasa Tarangini, Edited by Kashinath Shastri, 11th Edn, New Delhi, Motilal Banarasidas publication, 1979, 6th Chapter, Version 162- 189, 135-140pp.
3. Dr. Chandrabhushana Jha, Ayurvediya Rasa shastra, 2nd Edn, Varanasi, Chaukhambha Surabharati Prakashan, reprint 2006, 174pp.
4. Prof. S.N.Mishra, Ayurvediya Rasa Shastra, 10th Edn, Varanasi Chaukhambha Orientalia, 2000, 281, 286pp.
5. Sri Vagbhatacharya, Rasa Ratna Samucchaya, Edited by Pandit sri dharmanandan sharma, 2nd Edn, Varanasi, Motilal banarasi das, 1996,, 9th Chapter, Version 33- 36, 136pp
6. Sri Harisharnanda Sharma, Kupipakwa Rasa Nirmana Vijnana, Amritsar, 1st Edn, Amritsar, 1941, 52pp.
7. Vaidya Sri Chudamani Mishra, Rasa Kamadenu, with\ Suvivrutti Hindi commentary by Acharya Gulraj Sharma Mishra and Santhosh Kumar Sharma, 2nd Edn, Varanasi, Chaukamba Orientalia, 1999, 1st part, Version, 24-25pp.

8. Sri Harisharnanda Sharma, Kupi Pakwa Rasa Nirmana Vijnana, 1st Edn, Amritsar, 1941, 53-54, 136-137pp.
9. Sri Harisharnanda Sharma, Kupipakwa Rasa Nirmana Vijnana, 1st Edn, Amritsar, 1941, 63, 115-116pp.
10. Vaidya Vasudeva Mulashankara Dvivedi, Parada Vijnaneeyam, 2nd Edn, Datia, Sri Sharma Ayurveda Mandira, 1997, 244 -245pp
11. Sri Siddinandana Mishra, Ayurvedeeya Rasashastra, 11th Edn , Varanasi, Chaukamba Orientalia,2001, 282-283pp.
12. Acharya Sri Madhava, Ayurveda Prakasha, Edited by Guljar Sharma Mishra, 2nd Edn, Varanasi, Chaukamba Brihat Academy, 1999, 1st Chapter, Version 399- 400,195pp.
13. Vaidya Vasudeva Mulashankara Dvivedi, Parada Vijnaneeyam, 3rd Edn, Datia, Sri Sharma Ayurveda Mandira, 1978,11th chapter, 245pp
14. Vaidya Vasudeva Mulashankara Dvivedi, Parada Vijnaneeyam, 3rd Edn, Datia, Sri Sharma Ayurveda Mandira, 1978,11th chapter, 246pp

Conflict of interest : Nil

Source of support: Nil

© 2022 IJIM (International Journal of Indian Medicine) | An Official Publication of Ayurveda Research & Career Academy.(ARCA) www.ijim.co.in