

A CRITICAL REVIEW ON KAJJLI: THE PRIME & INDISPENSABLE COMPONENT OF RASSHAstra

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ABSTRACT

Rasashastra is the branch of Indian alchemy which manages the scientific utilization of purified and processed metals, minerals, valuable stones, marine, narcotic, and different herbs for curing diseases and rejuvenation. *Kajjali Kalpa* is a novel concept of ancient Indian drug delivery system. Despite the fact that the specialists of *Rasashastra* consider *Kupipakwa Rasayana* and *Pottali Rasayana* as prominent therapeutic agent, the *Kajjali Kalpa - Khalviya Rasayana* are likewise similarly effective *Rasa yoga* helpful in various clinical conditions. Black sulfide of mercury (*Kajjali*) comprehensively and synergistically acts with the herbal ingredients to bring multitargeted organ effect, in particular, *Rasayana* effects in its complete sense.

KEYWORDS: *Kajjali, Khalviya Rasayana, Kajjali Kalpa, Rasayogas.*

INTRODUCTION

Rasashastra is a unique branch of Ayurveda popular from medieval period, mostly deals with therapeutic utilization of metals and minerals. Mercury (*Parada*) is the prime member and considered to be highly auspicious material followed by sulfur (*Gandhaka*), which is essential to potentiate the therapeutic properties of former in many ways. *Kajjali* is the name given to a compound obtained by either combination of mercury and sulfur in different ratios^[1] or even combination of these two along with some other metals.^[2] In fact, *Kajjali* is considered to be first *Murchana* of *Parada*.^[3]

Hundreds of formulations are explained in classical text with the permutation combination of *Kajjali*^[4] in different proportion of sulfur and mercury along with herbal ingredients.

Numerous formulations are mentioned in classical texts with the combination of *kajjali* along with other ingredients. *Kajjali* synergistically acts with the herbal drugs. *Kajjali* is mentioned in different contexts under different headings in *Rasagranthas*. The references are scattered and there is a need to review, compile, analyze and present them systematically.

AIM AND OBJECTIVES

- To study about the literary review of *Kajjali*.

MATERIAL AND METHODS

- The whole article is based on literary review collected from classical *Ayurvedic* texts, modern books and journals.

KAJALLI

When purified *Parada* is triturated with the other purified metals and mineral drugs like sulphur etc .without adding any liquids till the mixture becomes fine and black colour, it is called as *kajjali*. *Kajjali* is the basic preparation in all the *sagandha rasa yogas*.^[5]

- *Kajjali* can be one type of *Parada bandha* i.e *kajjali Bandha*^[6]
- It is one type of *niragni sagandha murchana*^[7]
- One of the examples for *kharaleeya rasayana*

PREPARATION OF KAJJLI

To prepare *Kajjali* ingredients have to be taken and procedure should be followed as per classics and trituration should be done till *Nishchandratva* is obtained. After this if any *Bhavana Dravya* is indicated then mix it in given quantity and triturate well till homogenous and soft lusterless mixture is obtained. Generally, the color of *Kajjali* is black and lustreless, but it may have varied little color difference depending on ingredients of *Kajjali*.^[8] *Shuddha Parada* is taken in a clean *Khalva Yantra* along with desired quantity ratio of *Shuddha Gandhaka*, or any other purified *Uprasa* or *Dhatu Bhasma* and triturated thoroughly without adding any liquid to obtain the jet-black in color and very fine powder form. This jet-black colored powder with no shiny particles (*Nishachandratva*) is called as *Kajjali*.^[9]

Based on the ratio of *Parada* and *Gandhaka*, *Kajjali* will be employed in preparing different (*Rasayoga*) formulations. The *Rasayoga*, where is *Parada* and *Gandhaka* are in 1: ½ ratio is available in Table 1. Similarly, *Rasayoga*, where in *Parada* and *Gandhaka* are in 1:1 ratio is mentioned in Table No 2.

Rasayogas, where is Parada and Gandhaka are in 1: ½ ratio.

1. Chaturthikahara rasa
2. Mehari rasa
3. Suryavartha rasa
4. Krishnamanikya rasa
5. Swasantaka rasa
6. Timirahara Anjana
7. Arshognavati
8. Rasasindhura

Rasayogas where in Parada and Gandhaka are in 1:1 ratio

1. Trilokyasundara rasa 2. Umaprasadana rasa 3. Nava jwarari rasa 4. Trilokyadambara rasa
5. Sarvangasundara chintamani rasa 6. Jalamanjari rasa 7. Jwaragajakeshari 8. Suchimukha rasa
9. Kanta rasa 10. Dipika rasa 11. Sannipatha gajankusha rasa 12. Chandrodaya rasa
13. Sheetabhanji rasa 14. Chaturtika gajankusha rasa 15. Jeerna jwarari rasa 16. Mruthasanjeevana rasa (dhwithiya) 17. Panchavaktra rasa 18. Navajwara murari rasa
19. Mahajwarankusha rasa 20. Unmatta rasa, 21. Raktapittankusha rasa 22. Jwarankusharasa
23. Pratapa lankeshwara rasa 24. Bhutaankusha rasa, 25. Mruthyunjaya rasa (prathama)
26. Praneshwara rasa 27. Swasaharavataka 28. Chandra surya rasa 29. Sannipatha kutara rasa
30. Neelakanta rasa 31. Swasakasakarikesari rasa 32. Trilokyatilaka rasa, 33. Ajeernakantaka
- rasa 34. Surya rasa 35. Sudhasara rasa 36. Visuchividhwamsa rasa 37. Kajjali yoga
38. Nagasundara rasa 39. Vaishwanara potali rasa 40. Kanaka sundara rasa 41. Agnikumara rasa
42. Amrutha vati 43. Kshayashamaka rasa 44. Chandasamgrahagadhaikapata rasa 45. Rakshasa
- rasa 46. Vajra rasa 47. Laghusiddhabhra rasa 48. Vadavanala rasa 49. Thrushnahara yoga
50. Sheegraprabhava rasa etc.

DHATU PISHTI

The second method of *kajjali* preparation required *dhatupishti* preparation. Purified foils of metals like gold etc. mixed with the purified mercury to form a soft paste like amalgamate is called *dhatu pishti*. After preparation of *kajjali* adding *dhatu bhasma* does not make a proper mixture. Hence amalgamation of mercury and metals is necessary for the proper mixture of metal and mercury.

MURCHANA AND JARANA

According to *Ayurveda Prakash* 'Murchana' and 'Jarana' are used as synonyms but this is true only in the contexts of '*Gandhaka Jarana*'. In other places these are different from each other.^[10] The basic concept behind is that mercury with or without sulphur converts in such a suitable compound form which could be used internally in the body for curing diseases even without being reduced/converted to ashes. *Murchana*, which means to introduce disease-curing properties in *Parada*.^[11]

Jarana and *Murchana* are two independent procedures followed in *Parada Sanskar* (potentiation of mercury). *Murchana* involves change in physical state of mercury from liquid to powder state. *Murchana* is a process in which mercurial compounds develop *Avyabharita Vyadhighatakatva* (disease curing) property or potency.^[11] The basic concept behind is that mercury with or without sulfur converts in such a suitable compound form which could be used internally in the body for curing diseases even without being reduced/converted to ashes. *Murchana*, which means to introduce disease-curing properties in *Parada*.^[12,13]

Through this process, mercury and mercurial compounds should develop a definite diseases curing capacity and after *Murchana* mercury may not return to its original form (*purvavastha*). One specific type of *Murchana* in which without heat treatment mercury is processed with sulfur is *Kajjali (Sagandha Niragni Murchana)*.^[14] Here, continues and vigorous grinding is done until black-colored powder like compound is prepared that fulfills some typical tests such as absence of shininess and floating over water surface.^[15] As it is first *Murchana* of *Parada*, it is being used as a primary component of even processing of mercury with sulfur with heat treatment (*Sagandha Agni Murchana*) such as *Kupipakwa Rasayana*, *Parpati Kalpa*, and *Pottali kalpa*.

Whereas such a change is not expected in *Jarana Sanskar* with the help of *Vida* and through various pharmaceutical procedures carried out using variety of instruments such as *Baluka yantra*, *Kacchapa yantra*, and *Jarana yantra*, the process of digesting other metals and minerals in mercury is called as *Jarana*.^[16] percent of therapeutic strength in mercury can be obtained only after digestion (*Jarana*) of purified sulfur (*Suddha Gandhaka*) in and it is different ratios.

The digestion (*Jarana*) of mercury in sulfur (*Gandhaka in Parada*) ranges from 1:1 ratio to 1:6 ratio; i.e., one part of mercury with either 1, 2, 3, 4, 5, or 6 times of purified sulfur. As per *Ayurveda prakash* in certain context, both the terms are used as synonyms^[17] also otherwise both are different from each other, only in the context of *Gandhaka Jarana* both are used as synonyms and for same objective. Even though mercury is a toxic element, the forms of mercury play an important role in converting it to toxic metal. In *Jarana*, mercury does not convert in any form rather remain in its original (mercury) form. It consumes and digests some metal contents of some minerals (*Satva*) and gold silver, etc., metals (*Bija*) in specified amount and returns to its original form (*Purva avastha*).^[18] In *Jarana*, mercury does not essentially acquire disease-curing property rather it is done to prepare mercury suitable for further *Samskara* means for transformation purposes (*Dhatuvada*).^[19] The process *Jarana* is also aimed at improving the appetite of mercury through various pharmaceutical procedures.

KAJJALI PAREEKSHA

Before using it is necessary to examine the *kajjali*. Examination parameters that the *kajjali* should qualify are *slakshna* (smooth), *kajjalabha* (black colour just like collyrium), *nishchandrata* (devoid of shiny particles), *rekhapurna* (seen even through the fine lines on fingers), *varitara* (floats on the surface of water).

USES OF KAJJLI

The *kajjali* prepared with different ratio of *parada* and *gandhaka* will have different therapeutic uses.

Table no 1: showing, indication and *anupana*/ *Sahapana* of different *kajjalis*.

S.NO.	Parada gandhaka ratio	Sahapana /Anupana	Indication
1.	1:1	Ela, maricha, karpura, musta, lavanga and badarabija fine powder along with honey	Chardi
2.	1:1	Varunaadikashaya	Abhyantaravidradi
3.	1:1	Nimbukamla, sunthi and pippali	Ajirnaroga
4.	1:1	Equal quantity of Ela , ahipheena, karpura, jatiphala ,lavanga along with honey Dose is of 4 ratti	Swapnameha
5.	1:1	Mix with Simsupataila or navaneeta and apply on affected part	Chronic charmadalaroga
6.	1:1	Equal part saindhavalavana and triturated with arkadugdha and paste is applied	Ganda mala
7.	1:1	Triphalachurna, suddhaguggulu and triturated with earandataila and paste is administered with warmwater or milk	All type of vatajaroga

8.	1:1	Applied with navaneeta	Gajacharmaroga
9.	1:1	Administered along with khandasharkara and amalakiswarasa	All type of madatyaya
10.	1:1	Triturated with datturabijaswarasa and trikatuchurna administered as nasya	sannipatajaroga

DISCUSSION

Kajjali is the base material and is used in maximum formulations of Indian system of medicine. It is more common and popular in day-to-day practice as it is very easy to prepare and very safe to use. When used internally, it does not produce any toxic effects in the body. Organic mercury such as methyl mercury and ethyl mercury is found to be 5000 times more toxic than inorganic mercury like sulfides of mercury. Only minimum amount of mercury is absorbed from inorganic mercury. Mercury is widely used in *Ayurvedic* drugs in the form of mercuric sulfide (HgS), an inorganic compound of mercury. Rarely, other inorganic compounds of mercury such as mercuric chloride are used. Such use is restricted and always advocated with a specific caution regarding its toxicity. It is a well-known fact that negligible amount of sulfide compounds of mercury is absorbed through gastrointestinal (GI) tract and hence is non-toxic in nature.

The ancients brilliantly overcame the problem of mercury toxicity by severely reducing its bioavailability through the use of sulfur. Intimate mixing of purified mercury and sulfur to prepare the *Kajjali* is the first step in the preparation of any herbomineral preparations (*Rasaushadhi*). As mentioned before, the compound of mercury and sulfur is prepared in many ways, but one always finds the use of excess sulfur in the preparation of a form called *Kajjali*, more than required for the stoichiometric preparation of HgS (approximately sulfur at 1/6 of the weight of mercury). The idea behind use of higher ratios of sulfur in the preparation of *Kajjali*. could be to prevent oxidation as well as to make available more sulfur.

Thus, chances of toxicity from *Kajjali* formulations are very negligible or nil since long time these medicines are being used in traditional systems of medicine. Moreover, the methodology adopted in processing of mercury is so unique that it is treated with materials that reduce toxicity of the same. For example, in *Ayurveda* for purification (*Shodhana*) of mercury, *Allium sativum* (*Rasona*) is used. For almost all procedures of mercurial processing, sour gruel (*Kanji*) is used, such as heating, boiling in liquid bath, grinding, sublimation, and distillation. *Rasona* and *Kanji* both contain sulfur that reduces toxicity of mercury. *Kajjali* is a

type of *murchana*, it attains a *vyadhiharatva* properties and most commonly used for the therapeutic purpose because of its *vyadhiharatva* properties, it can also act as *rasayana*.

CONCLUSION

Ayurveda encompasses the use of multiple compound formulations known as *Rasa kalpas* to provide a near immediate relief. However, a detailed study is need of hour to check the pharmacodynamic as well as pharmacokinetics of these *Rasa kalpas* and, in particular, the *Kajjali*, i.e., the mercury-sulphur compound to understand its role on the organs and genetic susceptibility.

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