

A CONCEPTUAL REVIEW OF KAJJALI – THE PRIME AND BASIC COMPOUND OF RASA SHASTRA

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ABSTRACT

Ayurveda is an ancient science of health which deals not only with the treatment but also it gives us a way of life. *Rasa Shastra* is a branch of Ayurveda with its specific Herbo-mineral preparations. *Kajjali* is a basic preparation of *Rasa Shastra* and also used as a raw drug of various *Rasashastriya Kalpanas*. *Kajjali* is a compound of Parada and *Gandhaka*, also known as black sulphide of mercury in modern. *Kajjali* is non-toxic in therapeutic doses and stable compound form and its therapeutic efficacy increases as the quantity of *Gandhaka* increases in it. Many *Rasashastriya* procedures like -*Jarana*, *Murchana* etc. also increases its efficacy. *Kajjali* also increases therapeutic efficacy of various herbal drugs by trituration.

KEYWORDS: Ayurveda, Rasa Shastra, Kajjali, therapeutic efficacy, Gandhaka Jarana.

1. INTRODUCTION

Ayurveda is the God gifted ancient and the first medical science which was memorized and composed by the originator *Brahma*. *Ayurveda* is the only ancient science which keeps human body and mind healthy through equilibrium in *Tridosha*, *Panchamahabhoota*, *Sapta-Dhatvagni*, *Trayodasha Jatharagni*, *Vidamootraswedadimala* and *Poshana*, *Dharana* and *Nirgamana* of *Saptadhatu*.^[1] The object of *Ayurveda* is to protect health of a healthy person and to alleviate disorders in the diseased.^[2] *Rasa Shastra* is the special branch of *Ayurveda*

science, which deals with the processing's of the metallic, mineral and poisonous drugs. *Kajjali* is one of the basic preparations of *Rasa Shastra*. *Kajjali* is itself a drug and also used as raw drug for various *Rasashastriya* preparations. *Kajjali Kalpas* are found effective in diseases of almost all *Srotasa* in the body.

The *Parada* is ground well with, either metals like *Swarna* etc. or with *Gandhaka* etc. without adding any liquid. The resultant materials, which is very soft and fine, looking like *Kajjal* (a black soft substance which is put in the eyes-collyrium), is called *Kajjali*.^[3] *Kajjali* is black sulphide of (mercury) *Parada*. It is prepared from classically treated and detoxified mercury and sulphur. It is a *Sagandha – Niragni Pota Bandha* of *Parada* and a *Khalvi Rasayana*. In different proportion of sulphur and mercury along with herbal ingredients. The impact might be multi-dimensional, free radicals scavenging, antioxidant, antimicrobial, reactant, pro-enzymatic, or immune-modulator. *Kajjali* complex is additionally more effective in light of its longer stay and coordinated and sustain release, GI absorption/stimulant, and even neuro-chemical irritability.^[4]

2. MATERIALS AND METHODS

During review process many *Ayurvedic* literatures, modern literature as well as research articles and thesis work were reviewed.

a. History of *Kajjali*

In India, the medicinal use of *Parada* and *Gandhaka* is known since 10th to 5th century B.C., since the period of *Acharya Charaka* and *Acharya Sushruta*, but their medicinal use in the form of *Kajjali* is elaborately evidenced and used since 8th century A.D., at the period of *Acharya Nagarjuna*, the pioneer of *Rasa Shastra* (Indian alchemy). *Kajjali* is used frequently in the treatment of many diseases.^[5]

b. Synonyms^[6]

Kajjali, *Kajjal*, *Kajjalika*.

c. Symbol - HgS.

d. Chemical Name - Black sulphide of mercury.

e. Different forms of HgS used in *Ayurvedic* therapeutic^[7]

Variety of HgS compounds Broadly known as -

- ❖ *Kajjali* - Black sulphide of mercury
- ❖ *Hingula* - Red sulphide of mercury
- ❖ *Rasa Parpati* - Black sulphide of mercury

❖ *Rasa Sindoor* - Red sulphide of mercury

f. Different forms of adding *Dhatu* into *Parada*

1. If *Swarna*, *Rajata* etc. – These *Dhatu*s should be in the form of fine leaves.
2. If *Naga*, *Vanga* etc. -These *Dhatu*s should be melted and then added for trituration.
3. If *Loha*, *Tamra* etc. –These *Dhatu*s should be in the form of *Bhasma*.

❖ **Remark** – *Kajjali* must be made by triturating *Shuddha Dhatu* and *Parada* first and when it forms amalgam then only *Gandhaka* should be added, especially while making it for *Dhatu Marana* (*Bhasma Nirmana*).

g. Preparation of *Kajjali*

To prepare *Kajjali* ingredients have to be taken and procedure should be followed as per classics and trituration should be done till *Nishchandravta* 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 (*Nishachandravta*) is called as *Kajjali*.^[9]

Table - 1 - *Kajjali Siddha Lakshana*.

No.	Lakshana	Description
1.	<i>Krishna</i>	Blackish color (jet-black).
2.	<i>Slakshanavta</i>	Smooth to touch.
3.	<i>Sukshmatva</i>	Subtleness like <i>Anjana (collyrium)</i> .
4.	<i>Rekha-purnavta</i>	Settles in between fine lines of palm and fingers.
5.	<i>Nishchandravta</i>	When a pinch of <i>Kajjali</i> is taken on the palm and rubbed with drop of water. This mixture when exposed to sun should show absence of any shining particles of mercury.

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]

h. Jarana

The *Rasa Shastra* texts claim that *Parada* treated with *Gandhaka Jarana* process becomes highly potentiated and able to do many pharmacological and therapeutic properties. This potentiating depends on the proportion of sulphur used during *Jarana* process.^[12] 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 and gold silver like metal etc., metals in specified amount and returns to its original form.^[13]

Shaadagunabali jarita Parada is claimed to be much more effective than *Samguna* or *Dwiguna Bali jarita Parada*. Not only have this some texts claimed that without *Shadagunabali jarana*, *Parada* does not develop a disease curing capacity. Hence from therapeutic point of view it is essential. It is understood that different proportion of *Gandhaka* and different duration of heating definitely have linear effect on the clinical efficacy of *Kupipakva Rasayan*. Based on their vast experience the ancient's seers of *Rasa Shastra* have emphasized on the difference in therapeutic potential of *Kupipakva Rasayan* prepared from different methods.^[14]

i. Karma of Jarana^[15]

The general sequence of digesting other metals and minerals in mercury is specified in the classics. At the beginning, *Jarana* of *Shuddha Gandhaka* is done with the help of *Kacchapa Yantra*, followed by *Jarana* of *Shuddha Abhraka*, *Shuddha Swarna Makshika Sattva* or *Shuddha Swarna*. Later the *Jarana* of *Shuddha Naga* and *Shuddha Vanga* and the *Shuddha Ratna* is done. This is the correct sequence of *Jarana* that has to be followed.

Table 2: Therapeutic effect of *Gandhaka Jarana*.

S. No.	Proportion of <i>Gandhaka</i> (Sulphur)	<i>Rasa Tarangini</i> ^[16]
1.	<i>Samaguna</i>	<i>Samanya Gadanashana</i>
2.	<i>Dwigunna</i>	<i>Maharoghara</i>
3.	<i>Triguna</i>	<i>Pumsatva Prakashaka</i>
4.	<i>Chaturguna</i>	<i>Mahotsaha Medha Smriti Vivardhana</i>
5.	<i>Panchguna</i>	<i>Gada Santapa Nashaka</i>
6.	<i>Shadguna</i>	<i>Adbhuta Karyakrit</i>

j. Murchana

Murchana is defined as producing of *Vyadhinashaka Guna* in *Parada* with or without mixing the *Gandhaka*.^[17] The author of *Rasendra Chintamani* opines that without *Shadguna Gandhaka Jarana*, *Parada* is not potent to cure the diseases. He explained *Murchana* should

be done by performing *Jarana* in different *Yantras*. He mentioned 2 types of *Valuka Yantra* for this purpose. He also mentioned *Antardhooma*, *Bahirdhoma Shadguna Gandhaka Jarana* processes. One specific type of *Murchana* in which without heat treatment mercury is processed with sulphur is *Kajjali* (*Sagandha Niragni Murchana*). Here, continues and vigorous grinding is done until jet-black coloured powder like compound is prepared that full fills some typical tests such as absence of shininess and floating over water surface. As it is first *Murchana* of *Parada*, it is being used as a primary component of even processing of mercury with sulphur with heat treatment (*Sagandha Agni Murchana*) such as *Kupipakva Rasayana*, *Parpati Kalpa*, and *Pottali Kalpa*.^[18] The minerals and metals when processed with addition of sulphur or sulphur containing mineral, immediately get converted into sulphides and most of these are non-toxic. Cu, Pb, Sn, Zn, As etc; are highly toxic if they are in oxide form, but their sulphate compounds are nontoxic or least toxic.^[14] as well as *Rasona* and *Kanji* contains sulphur that decreases the toxicity of mercury.^[19]

❖ Types of murchana^[20]

A. *Sagandha* and *Nirgandha*

sub-type of *Sagandha*

1. *Antarduma Bahirduma Nirduma*
2. *Gandhapisthi, Gandhabaddha, Gandhajirna, Rasagandhakajjali, Dhatupist.*

3. DISCUSSION

Internal administration of *Kajjali* is said to cure many disorders, pacifies the *Tridosha* (disorder of the three humours of the body) and acts as *Vrushya* (aphrodisiac). Further, it is also used as *Sahapana* (taking together with the medicine) and *Anupana* (a vehicle taken after the medicine).^[21] In this process mercury is changed into some compound form suitable for the therapeutic uses. Probably because of this reason it is said in the context of *Murchana* that though, it is different from a *Bhasmas* till it helps in making mercury suitable for internal administration to cure the diseases. But in the case of *Jarana* it is not so, as at the end of this process mercury remains in its original liquid form and thus cannot be used as it is for therapeutic purposes.^[22] Trituration of herbal powders with *Kajjali* draws out the structure of the compound as different layers of herbal therapeutic standards with inert molecular layer of *Kajjali*, and this formation of chemically organized alternate layers of *Kajjali* and herbal compounds continues proportionally with that of continued *Mardana*. It is also worth to note that, when compared to the herbal powders alone, the t ½ of *Kajjali Kalpa* is more. *Kajjali*

stratified compact herbal molecules will be benefited with prolonged $t_{1/2}$, hence the gradual and sustained drug plasma availability. To be still specific, *Kajjali* also enhances the $t_{1/2}$ of herbal powders; hence a technological natural advantage. sulphides of mercury are bactericidal and bacteriostatic. When *Kajjali Kalpas* are administered, probably GI antimicrobial and bactericidal effects take place. When topically used the same will be dermato-protective, antifungal antimycotic and antiseptic.^[4]

4. RESULTS AND CONCLUSIONS

Kajjali is a basic and prime preparation is *Rasa Shastra* and it justify its name by its appearance like – *Kajjalabha*. It is prepared by mixing of *Parada* (*Shiva Virya*) and *Gandhaka* (*Parvati Raja*) and attains disease curing ability. In modern aspect sulphur combines with mercury and makes black sulphide of mercury that is a stable and therapeutically important and non-toxic in therapeutic dose. Different pharmaceutical processes like – *Jarana*, *Murchana* also increases its disease curing ability by combining of more sulphur in mercury.

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