

A Review of Rasona Ksheerapaka and its Potential Activity in Hyperlipidaemia

Dr. Ayush Vatan Sharma¹ and Dr. Rekha Bhagwat Shinde²

PG Scholar, Department of Rasashastra & Bhaishajya Kalpana¹

Associate Professor, Department of Rasashastra & Bhaishajya Kalpana²

Pravara Ayurveda Medical College, Shevgaon, Ahmednagar, India

Abstract: *Ayurvedic pharmaceuticals deals with various methods of preparation of medicines. Basic preparations are five i.e. Swarasa, Kalka, Kwath, Hima and Phanta. With these basic methods other preparation were derived. In our classics a lot of references are available regarding Ksheerapaka preparation but many of the references vary in their opinion about the ratio of Drug, Milk and Water, Due to this ambiguity it is difficult to assess the better method of preparation of Ksheerapaka which will be therapeutically more effective. Keeping this in mind, study was done on Rasona Ksheerapaka prepared with different ratios of milk and water keeping the ratio of drug as constant and its effect on Hyperlipidaemia.*

Keywords: *Rasona Ksheerapaka, Anti-hyperlipidaemic activity, Ayurveda*

I. INTRODUCTION

Ayurveda, the science of life has its root in antiquity, even the historians cannot peep into the depths of that remote past. In *Ayurveda*, there was no separate mention of *Bhaishajya Kalpana* in the early period. This branch of learning was dealt while describing the treatment part of the diseases itself.

The entire science of *Ayurveda* has been framed upon *Trisutras (Hetu, Linga, Aushadha)*¹. Among them, *Aushadha* is most important for the alleviation of diseases as well as for the maintenance and promotion of good health. No branch (*Ashtangas*) of *Ayurveda* can exist independently without the aid of *Aushadha* or *Bheshaja* (source may be Plant, Animal or Mineral origin).

The term *Bhaishajya Kalpana* consists of two words "*Bheshaja*" and "*Kalpana*". The word *Bheshaja* or *Aushadha* is defined as "that which conquers the disease"². It is said that even a simple drug could be made into most powerful one by simple procedures like addition or deletion of certain drugs, by keeping the drugs with certain *Bhavana Dravyas* for specific time, by collecting the drugs during scheduled period, by following certain adaptation procedures along with the enhancement of the potency of the drug, it will be made fit for therapeutic administration. *Acharya Charaka* says, by proper processing even fatal poison can be converted into an excellent medicine³.

Ksheerapaka is a special kind of preparation in the *Ayurvedic* pharmaceuticals where Milk is used as a media along with the water for the extraction of active principles and for administration. Though there are many references about the preparations of *Ksheerapaka*, in both *Brihatrayees* and *Laghutrayees*, the acharyas might vary in their opinion in context of ratio of Drug, Milk and Water used.

Today is the era of modernization and fast life. Everybody is busy and living stressful life. Consumption of fast foods having high calories is also increasing. Since *Rasona* is a known antihyperlipidemic drug. Here the active principles of *Rasona* are extracted through the milk and water and used for the study.

Objectives of the study

Review on *Rasona Ksheerapaka*

Methodology

This study includes Review on *Rasona, Ksheerapaka* and its Hyperlipidaemic action.

Drug review –

Rasona^{4,5} –

Rasona Utpatti - when *Garuda* (the king of birds) was taking away *Amruta* (divine nectar) from Indra few drops spilled on earth, from which, *Rasona* grew.

Botanical Description – Garlic is bulbous variety of plant. It is 30-60 cm in height. Its stem is tender, Leaves flat, thin and long.

Latin name – *Allium Sativum*

Family – Liliaceae

Habitat - All over India.

Properties - Properties of *Rasona* are *Snigdha* (unctuous), *Tikshna* (intense), *Pichchila*, (slimy) *Guru* (heavy), *Sara* (laxative), *Rasa* - *Panchrasa* mainly *Tikta* (bitter) and *Madhura* (sweet), *Vipaka* - *Katu* (pungent), *Veerya* – *Ushna* (hot), *Karma* - *Kaphaghna* by pungent and *Ushna*, *Vatashamaka* by *Snigdha*, *Pichchila*, *Guru* and *Ushna*, *Raktapitta Vardhaka* by *Ushna* and *Tikshna*.

Chemical Composition (Biochemistry) -

Rasona (*Allium sativum*) contains 33 sulphur compound, 17 amino acids, several enzymes and minerals such as Selenium, germanium, tellurium and other trace minerals.

Parts used - Bulb, Oil.

Formulations – *Rasonvati*, *Rasonpinda*, *Rasonashtak*, *Lasunadi ghrita*, *Rasona siddha Taila*.

Side effects - Anorexia, Asthma, bleeding after surgery, blood pressure reduction, body odour, botulism (paralyzing illness) burns to the skin.

Antidote - Cold infusion of coriander seeds should be given repeatedly.

Preparation of Rasona Ksheerapaka⁶ –

The reference of *Rasona Ksheerapaka* is available in *Charaka Samhita*. However, the same reference is also available in *Ashtanga Hridaya*, *Chakradatta* and *Bhaishajya Ratnavali*.

Since there was no reference of *Rasona Ksheerapaka* found in *Sharangadhara Samhita* general method of preparation mentioned in the respective classical texts was followed.

Ingredients -

Rasona (*Allium sativum*)

Goksheera (Cow's milk)

Apparatus used -

- Mortar and pestle
- Weighing machine
- Stainless steel vessels
- Spoons
- Filter
- Gas stove

Steps followed for Rasona Shodhana⁶ –

As per the protocol of *Rasona Shodhana* mentioned in *Sharangadhara Samhita*. The bulbs of *Rasona* were separated into bulbils (bulblets). These were de-husked (external covering was removed) and separated into two halves and mid-stalk was removed. These destalked bulbils were soaked overnight in butter milk, next day washed with water and used for the preparation of *Ksheerapaka*.

General method of preparation⁷ -

Specific amount of *Rasona* (Garlic) was crushed and added with specific amount of Milk and water and heated on mild fire till the volume reduces to initial volume of the Milk. [1:8:32 ratio – *Sharangadhara Samhita*] Later it was filtered and used.

Observations –

- During the preparation creaming on the surface was observed which was subsided with frequent stirring.
- Emission of Alliaceous (Garlic) odour was observed.
- The pungent taste of the drug was reduced after the preparation.

Precautions -

- The drug material used was in paste form.
- It was cooked on mild fire throughout the process.
- Frequent stirring was done during the preparation.
- After the preparation it was filtered, on self-cooling collected in the plastic containers and they were named according to the ratio of drugs used for that particular preparation.

Organoleptic characters of *Rasona Ksheerapaka* –

Table no. 1

<i>Rasona</i>		<i>Milk [Ksheera]</i>		<i>Rasona Ksheerapaka</i>	
Colour	Cream White	Colour	White	Colour	Yellowish white
Odour	Garlic	Odour	Characteristic	Odour	Like Garlic
Taste	Pungent	Taste	Sweet	Taste	Sweet

Dose - General dose of *Ksheerpaka* is 2 *Palas*⁸.

Contraindication⁹ –

Being *Tikshna* and *Ushna*, it is contraindicated in pregnancy and those with *Pitta Prakruti* because it aggravates *Pitta*.

Pharmacological Properties of *Rasona Ksheerapaka*¹⁰ -

Hypolipidemic Activity -

Garlic reduces cholesterol biosynthesis by inhibiting the HMG-CoA reductase enzyme, the rate-limiting enzyme in cholesterol synthesis.

It lowers LDL (low-density lipoprotein) and triglyceride levels while promoting HDL (high-density lipoprotein) production.

Antioxidant Properties -

The antioxidants in garlic, such as selenium and flavonoids, prevent oxidative stress, which is a significant contributor to lipid peroxidation and atherosclerosis.

Anti-inflammatory Effects -

Hyperlipidaemia-induced inflammation is alleviated by garlic's ability to reduce pro-inflammatory cytokines like TNF- α and IL-6.

Enhanced Bile Secretion -

Garlic stimulates bile acid secretion, facilitating the breakdown and excretion of lipids.

Vaso-protective Activity -

Garlic improves endothelial function and reduces arterial stiffness, which is often compromised in hyperlipidaemia.

Mechanism of Action in Hyperlipidaemia¹¹ -

Reduction in Lipid Synthesis - Garlic suppresses hepatic cholesterol synthesis by inhibiting the HMG-CoA reductase pathway.

Improved Lipid Excretion - Enhanced bile acid secretion accelerates the elimination of cholesterol from the body.

Reduction in Lipid Absorption - Garlic reduces intestinal absorption of lipids by interacting with micelle formation.

Free Radical Scavenging - Garlic's antioxidant compounds neutralize free radicals, preventing LDL oxidation—a key step in plaque formation.

Clinical Evidence -

Several studies have demonstrated garlic's efficacy in managing Hyperlipidaemia -

Lipid Profile Improvement -

In a randomized clinical trial, garlic supplementation significantly reduced total cholesterol and LDL levels while increasing HDL levels in hyperlipidaemic patients.

The study also noted a reduction in triglycerides after six weeks of regular garlic intake.

Cardioprotective Effects -

Studies showed that garlic reduced arterial stiffness and improved endothelial function, thus reducing cardiovascular risk in hyperlipidaemic patients.

Antioxidant and Anti-inflammatory Properties -

Garlic supplementation reduces biomarkers of oxidative stress and inflammation, supporting its role in mitigating lipid-related damage.

While specific studies on Rason Ksheerpaka are limited, the synergistic effect of garlic and milk makes it a promising intervention for hyperlipidaemia.

Advantages of Rasona Ksheerpaka in Hyperlipidaemia^{10,11} -

- Holistic Approach - Combines the lipid-lowering effects of garlic with the nourishing properties of milk.
- Natural and Safe - Minimizes side effects compared to synthetic drugs.
- Easy Preparation - Can be prepared at home using readily available ingredients.
- Balanced Doshas - Suitable for most dosha types due to the pacifying effect of milk on garlic's heat.

Challenges and Future Directions¹¹ -

- Standardization - Variability in garlic's allicin content and milk composition affects the preparation's efficacy.
- Clinical Studies - More robust clinical trials are needed to evaluate the effectiveness of *Rasona Ksheerpaka* in hyperlipidaemia.
- Patient Compliance - The strong taste and odour of garlic may reduce patient compliance, requiring alternative formulations or masking agents.

II. DISCUSSION

Ksheerapaka is a liquid dosage form mentioned in the *Ayurvedic* pharmaceuticals. Though the method of preparation resembles to that of *Kwatha Kalpana*, specialty of this preparation is presence of Milk media, which reduces the *Ushnata* and *Teekshnata*, also mask the unpleasant taste of the drug used in the preparation.

The process of *Rasona Shodhana* was followed according to the reference available in *Sharangadhara Samhita* with an intention to reduce its *Ushnata* and *Teekshna Gandha* so as to make the *Ksheerapaka* more palatable.

The colour of sample of *Ksheerapaka* was yellowish white in colour. This was due to the colour of milk which was used for the preparation. The taste of sample of *Ksheerapaka* was Sweet and Alliaceous because of the presence of Milk media and the drug *Rasona* used in the preparation. The odour was also Alliaceous due to the drug *Rasona* used in the preparation.

Role of Rasona Ksheerapaka in Anti-hyperlipidaemic activity –

Rasona various preparations having actions like hypo-cholesterolemic effects in animals and man. In the Recent researches on animals or rats shown that they are having cholesterol lowering actions. Previous studies like Experimental study on Antihyperlipidemic activity of *Rasona Ksheerapaka* prepared by different methods in Albino Rats, shows effective in reducing Cholesterol, lipids, etc¹². *Rasona* compare with the Atorvastatin which releases hydrogen sulphide in obese and hyperlipidaemic patients.

III. CONCLUSION

Ksheerapaka is one of the unique liquid dosage forms mentioned in the Ayurvedic classics, where both milk and water-soluble active principles are extracted through this method. *Rasona Ksheerpaka* is a promising Ayurvedic remedy for managing hyperlipidaemia. Its hypolipidemic, antioxidant, and anti-inflammatory properties offer a natural, holistic approach to lipid management. While traditional use and preliminary evidence are encouraging, further research and clinical trials are essential to validate its therapeutic potential and establish its role in modern medicine.

REFERENCES

- [1]. J. Trikamji, Charaka samhita, Sutrasthana, Adhyaya 1st, Chaukhambha Orientalia, 9th edition, Varanasi, 2011, 7.
- [2]. Raja radha Kanta deva, Shabda kalpa druma, volume 3rd, Chaukhambha sanskrit series office, Varanasi, 3rd edition, 1967, 543.
- [3]. J. Trikamji, Charaka samhita, Sutrasthana, Adhyaya 1st, Chaukhambha Orientalia, 9th edition, Varanasi, 2011, 135.
- [4]. Dr Jadhav Kalyani Kunjan: Ayurvedic and Modern Review of Rasona (*Allium sativum*) ayurpub 2017;II(3):497-501.
- [5]. Garg et al, PHYTOCHEMICAL AND PHARMACOLOGICAL OF RASONA (*ALLIUM SATIVUM* LINN.): A REVIEW ARTICLE, World Journal of Pharmaceutical and Medical Research, ISSN 2455-3301, wjpmr, 2020,6(7), 255-257.
- [6]. Shastri pandit Parashurama. Sharangadhara samhita. 4th ed. Varanasi, Chaukhambha orientalia; 2000, 175.
- [7]. Vd Gangadhar Shastri Sathe, Sartha Sharangdhar samhita, Raghuvanshi Prakashan, 4th Edition, 1983, Page No.114.
- [8]. Dr. Kavita Shailesh Deshmukh: Ksheerpaka Kalpana - Nutraceutical In Ayurveda, ayurpub;II (5):657-664.
- [9]. Prof. Vd. V.M. Gogate Dravyaguna vigyan Vaidyamitra prakashana 701, Sadashivpeth Pune, First Edition 11 Feb, 2008, 596.
- [10]. Modern studies on garlic and lipid metabolism (e.g., PubMed and Ayurvedic pharmacology journals).
- [11]. Ayurveda pharmacopoeia guidelines for milk-based decoctions.
- [12]. A.N. Jayaprakash, Experimental study on Antihyperlipidemic activity of Rasona Ksheerapaka prepared by different methods in Albino Rats, RGUHS, 2014