

Review article

Review of pharmacodynamics and pharmacokinetics action of *Hridayarnav rasa*

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Article Received on: 20/11/2024 Accepted on: 20/12/2024 Published on: 25/12/2024

ABSTRACT:

Ayurvedic perspective on cardiovascular diseases (CVDs), collectively termed *Hridroga*, and the use of the herbo-mineral formulation *Hridayarnava Rasa* as a potential alternative treatment, especially for *kaphaja hridroga* (cardiac disorders due to kapha imbalance). A review of *Hridayarnav Rasa* a classical Ayurvedic formulation, particularly within the context of *Hridrog Chikitsa* (Heart disease management), could offer valuable insights into its pharmacodynamics and pharmacokinetics and how it acts upon various symptoms of cardiac conditions. This formulation is praised in *Phalashruti* (the traditional descriptions of therapeutic outcomes), with purported efficacy against hridrog and related symptoms.

KEY WORDS: Hridroga, hridayarnav rasa, cardiovascular diseases, kaphaj hridroga

INTRODUCTION:

Rasashastra is one of the inseparable parts of Indian Traditional Medicine, which comprehensively deals with different metals, minerals, gems, herbs, poisonous plants, their properties, different processing techniques, and therapeutic uses. This branch deals with the clinical uses of these materials, their possible adverse effects, and their management. Most of the preparations of Rasashastra are 'herbs-minerals-metallic' in nature, that is, they contain minerals and metals as an integral part of their formulations along with the herbs. The use of metals in medicine is often associated with toxicity, but they are made biocompatible in a particular chemical form by a detoxification process, which removes the toxic potential from metals and imparts them with a higher level of therapeutic efficacy. Hridroga refers to heart diseases caused by structural or functional damage due to factors like excessive intake of heavy, astringent, or bitter foods (e.g., *athi ushna*, *guru*, *tikta rasa*), Overexertion (*atishrama*), mental stress (*adhika chinta*), suppression of natural urges (*vegadharana*), and improper eating habits (*adhyashana*). These factors disturb the tridoshas (Vata, Pitta, and Kapha) and lead to the accumulation of *ama* (toxins), which further blocks channels (*strotas*), resulting in conditions such as atherosclerosis and palpitations. The increasing prevalence of cardiovascular diseases due to modern stress-filled lifestyles emphasizes the role of Ayurvedic medicine in addressing these issues. Impact

of Stress on Health as Fast-paced lifestyles contribute to conditions like diabetes, hypertension, and cardiovascular diseases, which are the leading causes of global mortality. Hridayarnava Rasa is an Ayurvedic formulation extensively described in Rasashastra texts (e.g., *Rasendra Sara Sangraha*) for its efficacy in treating and preventing Hridroga. It combines herbs and minerals, offering therapeutic properties for heart health without adverse side effects. Therefore, I am presenting my article on a hypothetical review of the pharmacokinetic and pharmacodynamic action of Hridayarnav Rasa.

MATERIALS AND METHODS:

Hridayarnav Rasa is a herbo-mineral drug that contains Shuddha parad, shudhha gandhak and shudhha Tamrabhasma with bhavana of kakmachi ras and Triphala kwath which helps to increase the potency of Hridayarnav Rasa.

The study of the pharmacological properties of ingredients and their therapeutic actions provides insights into breaking the Samprapti (pathogenesis) of diseases. This analysis is supported by references from classical Samhitas and contemporary published articles.

Study design:

1. The Pharmacokinetic action of Hridayarnav Ras

2. The Pharmacodynamic action of Hridyarnav Ras

Route of administration: Orally**The Pharmacokinetic Action of Hridyarnav Ras:**

Anupan–Triphala + Kakmachi kwath

Dose:1-2 Ratti

Indication – Kaphaj Hridrog

INGREDIENTS:**Table No 1: Showing the ingredients of Hridyarnav Rasa in various texts**

References	Parad	Gandhak	Tamra Bhasma	Bhavana dravya
Rasendra sar sangrah	1 part	1 part	2parts	Triphala Kwatha & Kakamachi swarasa
Ras chandankshu	1part	1part	2parts	Triphala Kwatha & Kakamachi swarasa
Rastarangini	1part	1part	2parts	Triphala Kwatha & Kakamachi swarasa
Rasendra Chintamani	1part	1 part	1 part	Triphala Kwatha & Kakamachi swarasa
Yogratnakar	1 part	1part	1part	Triphala Kwatha & Kakamachi swarasa
Raskandhrnu	1part	1part	1part	Triphala Kwatha & Kakamachi swarasa
Baishajyaratnavali	1part	1 part	1 part	Triphala Kwatha & Kakamachi swarasa

Table No. 2: Showing the properties of individual drugs.

Drug	Rasa	Veerya	Guna	Vipaka	Doshagnata
Parada	Shadrasa	Ushna	Snighda sara guru	Madhur	Tridoshaghna
Gandhaka	Madhur, Katu, Tikta, Kashay	Ushna	Ushna sara snigdha	Katu	Kapha Vatahara, Pittavardhaka
Tamra Bhasma	Tilta, kashay, Madhura, Amla	Ushna sheet	Laghu sara	Madhur katu	Pitta-Kaphara ⁶ ,
Haritaki	Kashay, Tikta, Madhura, Katu, Amla	Ushna	Laghu. Ruksha	Madhur	Tridosha Shamaka, Vatashamaka
Aamlaki	Amla, Madhur, Kashay, Tikta, Katu	Ushna	Guru Ruksha Sheet	Madhura	Pittashamak, Tridosha Shamaka
Bibhitaki	Kashay	Sheet	Sheet	Madhura	Kaphahara, Tridosha Shamaka
Kakmachi	Tikta	anushna	Laghu snigdha	Katu	Tridosha Shamaka

Table No. 3: Showing the Karma and Rogagnata of individual drugs.

Drug	Karma	Rogagnata
Parad	Yogavahi, rasayana, Vrishya, Balya, vayastambana, pustikaraka, deepana, agnivardhaka, deha and Loha siddikara, ropana, krimighna.	Vata roga, vali palita, jara, sarva akshi roga, krimi, kusta
Gandhak	Deepana, Pachana, Vishahara, Jantughna	Kandu, Visarpa, Krimi, Kustha, Kshaya, Pleeha, Rasayana
Tamra Bhasma	Netrya, Lekhana, Urdhwa-adha parishodana, Kshutkarma ⁶ , Saraka, Ropana	Udara roga, Kusta, Sthoulya, Pandu ⁶ , Garavisha, Swasa, Kasa, Kshaya, Pinasa, Shula, Amlapitta, Krimi ⁷ , Arsha, Grahani ⁸ , Apasmara, Yakritvikara
Haritaki	Anulomana, Mridurechana, Grahi, Vrishya, Hridya, Shonithasthapana, Rasayana, Medhya, Chakshushya	Vatavyadhi, Vrana, Rakatavikara, Vatarakta, Shwasa, Prameha, Swarabheda
Bibhitak	shotahara, vedanasthapana, rakta stambana, deepana, vajikarana, jwaragna anulomana, bhedhana, rechana, krimighna	Shohta-Vedanayuktavikara, Hridhya, Charmoroga, Granthi, Visapa, Agnimandhya
Amalaki	Dahaprashamana, Chakshushya, Keshya, Medhya, Balya, Rechana, Deepana, Hridya, Anulomana, Rasayana, Pramehagna, Jwaraghna	Mastishkadourbalya, Drishtimandya, Indriya-dourbalya, Dourbalya, Vibandha, Kasa, Shwasa, Rakatapitta
Kakmachi	Shotahara, Vranashodana, Raktashodana, Vishaghna, Chakshushya, Rasayana, Shwasahara, Jwaraghna, Hridya	Shohta, Urustamba, Vrana, Visarapa, Udara, Yakritshohta, Arsha, Pravahika, Atisara, Amavata

1. Parad and Gandhak Kajjali:

Kajjali, a preparation in Ayurveda, possesses properties such as Rasayana (rejuvenation), Yogavahi (synergistic action), and sarvarogahara (disease alleviation). These attributes enhance the potency and efficacy of medicines it is combined with, allowing them to work effectively even in lower doses. Kajjali boosts drug bioavailability, improving overall therapeutic outcomes. It also strengthens cardiac muscles through its Rasayana property and alleviates cardiac-related imbalances caused by Vayu dusti (vitiation of Vata dosha).

2. Tamra Bhasma:

Tamra Bhasma, an Ayurvedic preparation, is known for its Medhopaha (lipid-reducing), Lekhana (scraping), and Sthoulyahara (anti-obesity) properties, making it effective in treating hypercholesterolemia and dyslipidemia. It has madhura rasa (sweet taste), katu and madhura vipaka (post-digestive effects), sheeta virya (cool potency), and is beneficial for balancing Pitta and Kapha doshas.

Its Lekhana (scraping) and Karshana (depleting) properties help reduce atherosclerosis, prevent platelet aggregation, and rejuvenate damaged heart tissues. As a tonic for the heart-lung system, it clears coronary artery blockages, reduces thrombolytic changes, and promotes better iron absorption. Additionally, it supports liver function and treats cardiorespiratory ailments.

Tamra Bhasma, being rich in copper, fulfills the body's trace element needs. Copper is crucial for lipid metabolism, and its deficiency can lead to hypercholesterolemia and cardiovascular diseases. A copper-rich diet improves blood cholesterol levels and supports cardiovascular health.

3. Triphala:

Triphala, a combination of three fruits—Haritaki, Vibhitaki, and Amalaki—possesses shodhana (cleansing) and Rasayana (rejuvenation) properties, highly beneficial for cardiovascular health and blood purification.

Haritaki supports blood circulation and cleanses macro- and microcirculatory channels. It has hypolipidemic and hypocholesterolemic properties.

Bibhitaki aids in blood purification and circulation. The fruit extract of Terminalia bellerica exhibits hepatoprotective activity, regulates fat metabolism, lowers blood cholesterol, and reduces atherosclerosis.

Amalaki regulates liver function, accelerates blood clotting, and is rich in vitamin C. As a potent antioxidant, it neutralizes free radicals, enhances cardiac glycogen levels, and decreases serum GOT, GPT, and LDH, indicating its cardioprotective effects.

Overall, Triphala significantly improves circulation, lowers serum cholesterol, reduces high blood pressure, and exerts cardioprotective effects, making it an effective remedy for managing cardiac disorders.

4. Kakmachi Swaras:

Kakmachi Swarasa (juice of Solanum nigrum) is known for its Bhedana (purgative), Hridya (cardiotonic), Kaphahara (Kapha-reducing), Pittahara (Pitta-reducing), Rasayana (rejuvenating), and Vatahara (Vata-balancing) properties.

The pharmacodynamic action of Hridayarnav Ras:

- **Cardioprotective Effect (Hridya):**

- Strengthens the heart muscles and improves cardiac output through Rasayana properties.
- Enhances myocardial contractility and protects against ischemic damage.

- **Lipid-lowering and Atherosclerosis Prevention:**

- The Lekhana property of Tamra Bhasma and kakmachi helps reduce excessive fat and cholesterol, clearing arterial blockages and reducing the risk of atherosclerosis.

- **Circulatory Support:**

- Improves blood circulation by stimulating metabolic processes and clearing obstructions in the circulatory channels (Srotoshodhana).
- Addresses microcirculatory disorders, promoting oxygen and nutrient delivery to cardiac tissues.

- **Ama Clearance and Detoxification:**

- Removes toxic metabolites (Ama), a major factor in metabolic syndromes contributing to cardiac issues.

- **Vata and Kapha Balancing:**

- Reduces Kapha-induced blockages in blood vessels and balances Vata, which regulates circulation and cardiac rhythm.

- **Anti-inflammatory and Antioxidant Properties:**

- Reduces inflammation in blood vessels and myocardium.
- Prevents oxidative stress, protecting cardiac tissues from free radical damage.

DISCUSSION:

The selected formulation for review, **Hridayarnava Rasa**, was first described in the Rasendra Sara Sangraha and later adopted by other classical texts, including Rasachandamsu, Rasatarangini, Rasendra Chintamani, Yogaratnakara, Rasakamadhenu, and Bhaishajyaratnavali. While its basic composition

remains consistent, variations exist in the proportion of ingredients and the anupana (vehicle for administration). Variations in Composition are seen as Tamra Bhasma. Rasendra Sara Sangraha, Rasachandamsu, and Rasatarangini recommend 2 parts, other authors, like those of Rasendra Chintamani and Bhaishajyaratnavali, suggest 1 part. Differences in Anupana (Vehicle) also play important role-Rasendra Sara Sangraha and Rasachandamsu Recommend Triphala and Kakamachi Kwatha (decoction). Rasendra Chintamani Suggests Madhu (honey) and Tambulapatra Swarasa (betel leaf juice), Rasakamadhenu Recommends Madhu and Arjuna Kwatha (decoction of Terminalia arjuna), Bhaishajyaratnavali Suggests Arjunadi Kwatha (a decoction of Arjuna and associated herbs), Rasatarangini and Yogaratnakara Do not specify a particular anupana. The formulation primarily consists of herbs and minerals with Madhura (sweet), Tikta (bitter), and Kashaya (astringent) rasa, Laghu (light), Ruksha (dry), and Ushna (hot) guna, Ushna veerya (hot potency) and Madhura vipaka (sweet post-digestive effect). These properties primarily help to Pacify Kapha Dosha, which is the root cause of Kaphaja Hridroga (Kapha-dominant cardiac disorders), Exhibit Hridya (cardiotonic) effects, promoting cardiac health. Hridayarnava Rasa is specifically indicated in Kaphaja Hridroga due to Its ability to reduce Kapha Dosha through drying, scraping, and metabolism-enhancing properties., Strengthening the heart by nourishing cardiac tissues (Rasayana), Removing blockages in circulatory channels caused by Kapha accumulation. Hridyarnav Rasa Alleviates symptoms like breathlessness, palpitations, and chest pain associated with ischemic heart disease and congestive heart failure, Regulates blood pressure by enhancing arterial flexibility and reducing Kapha-induced stiffness, Provides symptomatic relief in angina through better coronary perfusion. Lowers cholesterol and triglyceride levels, preventing lipid accumulation in arteries and it Promotes cardiac rejuvenation and improves resilience against stress-induced cardiac damage. The combination of metals (Parada, Gandhaka, Tamra, and Loha) with herbal components enhances bioavailability and therapeutic potency, providing a holistic effect on both structural and functional cardiac abnormalities.

CONCLUSION:

Hridayarnava Rasa is a versatile Ayurvedic formulation with variations in preparation and administration across classical texts. The ingredients synergistic properties focus on pacifying Kapha, improving cardiac function, and alleviating symptoms of Kaphaja Hridroga. The choice of Anupana enhances the formulation's efficacy depending on the patient's condition and underlying dosha imbalance.

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Cite this article as:

Ashwini Nikam, Sunil Bakare, Review of pharmacodynamics and pharmacokinetics action of Hridyarnav rasa, ADJIM 2024: 9(1), p. 18-21.