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Hridaya Mahakashaya in Ayurveda: A Review on Cardioprotective and Vitamin C Rich Medicinal Plants

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Abstract
The number of heart patients is continuously increasing, which is why extensive research is being conducted to prevent this rise. Among various approaches, Ayurveda plays a significant role. Ayurveda is an ancient system of medicine that emphasizes not only curing disease but also maintaining health and preventing illness. Cardiovascular disorders continue to be the foremost reason for illness and mortality across the globe. Factors such as stress, sedentary lifestyle, smoking, diabetes, and dietary imbalance contribute significantly to their increasing prevalence. Acharya Charaka described fifty *Mahakashayas*, among which *Hridaya Mahakashaya* is specifically meant for strengthening the heart and safeguarding its functions. Vitamin C, a powerful antioxidant, is essential in combating oxidative stress. It helps neutralize free radicals, thereby protecting the heart and blood vessels. The presence of adequate Vitamin C in the body contributes to maintaining vascular integrity, reducing inflammation, and improving overall cardiac function. This review brings together information about ten medicinal plants of Hridaya Mahakashaya, highlighting their phytoconstituents and therapeutic potential for cardiovascular well-being.

Keywords: Hridaya Mahakashaya, Cardiovascular protection, Ayurveda, Vitamin C, Antioxidant

Introduction

Heart-related ailments including hypertension, coronary artery disease, and cardiac failure remain the primary cause of deaths globally, with approximately 17.9 million fatalities every year[1]. Common predisposing factors include obesity, hyperlipidemia, diabetes mellitus, psychological stress and use of tobacco. Oxidative stress plays a key role in the development of cardiovascular diseases by damaging the vascular endothelium and contributing to atherosclerosis. Cardiovascular diseases (CVDs) are responsible for approximately 25% of all deaths worldwide, with ischemic heart disease and stroke accounting for over 80% of these cases. In India, the age-standardized mortality rate from CVDs is 272 per 100,000 people, which is higher than the global average of 235 per 100,000 [2].In today's fast-paced lifestyle, many individuals suffer from chronic stress, poor diet, and inadequate sleep. These factors are directly

contributing to an increasing incidence of cardiovascular diseases. According to Ayurveda, the *Hridaya* (heart) is considered not just a physical organ but also the seat of the *Manas* (mind). Hence, any disturbance in the mind—such as stress, anxiety, or emotional imbalance—can initiate dysfunctions in the heart.[3] Charaka explains Hridaya as the Chetanaadhishtana Avayava and Sushruta mention Hridaya as the Chetana Sthana[4]Ayurveda provides preventive as well as therapeutic measures through proper food habits (*Ahara*), lifestyle modifications (*Vihara*), and herbal medications (*Aushadhi*). Acharya Charaka in *Sutrasthana* of *Charaka Samhita* enumerated fifty Mahakashayas, and among them *Hridaya Mahakashaya* is emphasized for its ability to promote heart health[5]. These herbs naturally supply vitamin C and bioactive phytochemicals with antioxidant and anti-inflammatory properties[6]

Since these 10 dravyas comprising Hridya Mahakashaya majorly has Madhura, Amla Kashayras, Ruksha-Laghu guna, Ushana Veerya, Madhura-Amla Vipaka and Tridosh shamak properties responsible in samprapti Vighatan (break the etiopathogenesis) of CVS[7]

The present review discusses ten such medicinal plants of *Hridaya Mahakashaya* with a focus on their phytochemical composition and potential role in maintaining cardiovascular health.

Aim

To review and analyze the medicinal plants of *Hridaya Mahakashaya* mentioned in Ayurveda with respect to their phytoconstituents, Vitamin C content, and their potential cardioprotective role in preventing and managing cardiovascular disorders.

Objectives

1. To explore the Ayurvedic concept of *Hridaya Mahakashaya* as described by Acharya Charaka.
2. To study the phytochemical constituents of these plants with special focus on Vitamin C and antioxidants.
3. To evaluate the pharmacological and therapeutic relevance of these herbs in cardiovascular protection.
4. To correlate Ayurvedic principles of heart health with modern evidence on oxidative stress, vascular protection, and cardiology.

MATERIAL & METHODS Conceptual study of *Hridya Mahakashaya* was taken from an Ayurvedic texts, *Samhitas*, *Nighantus* and different text books of *Dravyaguna*. Researcher's studies on these herbs pharmacological effects have also been compiled.

Hridya mahakasaya phytoconstituents and their action

1. Name -Amra

Latin name- *Mangifera indica Linn.*

Family - Anacardiaceae

Rasa – Madhura, Amla, Kashaya

Guna -Guru, Snigdha

Virya -Sita
Vipaka -madhura
Action: It acts as a powerful antioxidant that helps prevent the oxidation of LDL cholesterol and supports myocardial strength. Several classes of natural phytochemicals particularly polyphenols, phenolic acids, and flavonoids are well-known for their strong free-radical scavenging activity.[8]

2 Name - Amrataka
Latin name - *Spondias mangifera Wild.*
Rasa - Amla, Madhura, Kashaya
Guna -Guru snigdha
Virya -Ushna
Vipaka- Madhura
Phytoconstituents: These effects are primarily attributed to its rich phytochemical profile, which includes quercetin, rutin, gallic acid, tannins, and β-sitosterol [9]
Action: It exhibits antioxidant, anti-inflammatory, and lipid-modulating activities.

3.Lakucha
Latin name – *Artocarpus lakoocha Roxb*
Family – Moraceae
Rasa-Madhura Amla
Guna – Guru Ruksha
Virya- Usna
Vipaka- Amla
Phytoconstituents: Lakucha (*Artocarpus lakoocha)* contains a wide range of phenolic compounds, including flavonoids and phenolic acids. Its phytochemical profile is particularly rich in molecules such as flavonoids, artocarpin, various phenolic acids, and other phenolic derivatives. These constituents contribute to its antioxidant and therapeutic properties. [10]
Action:
A. lakucha plants have biological properties such as antiviral (for HSV and HIV), antibacterial, antimalarial, antituberculosis, anti-plasmodial, anti-atherosclerotic, antifungal, antidiarrheal, antidiabetic, wound healing, anti-inflammatory, and anticancer and also contain active compounds such as artocarpin, oxyresveratrol, phenols, and flavonoid[11]

4.Karamarda
Latin name – *Carrisa carandas Linn.*
Family – Apocynaceae
Rasa- Amla
Guna – Guru
Virya- Usna
Vipaka-Amla
Phytoconstituents: It contains a diverse range of phytochemicals, including flavonoids, phenolic acids, alkaloids, and lignans, which collectively contribute to its pharmacological activities.

Action:

. These phytochemicals exhibit a range of pharmacological activities including antioxidant, cardioprotective, anti-inflammatory, antidiabetic, antimicrobial and antifungal properties.[12]

5. Vrikshamla

Latin name –. *Garcinia indica Chois.*

Family – Clusiaceae

Rasa- Madhura Amla

Guna – Laghu Ruksha

Virya- Usna

Vipaka- Amla

Phytoconstituents:

Garcinol exhibits strong antioxidant activity due to the presence of phenolic hydroxyl groups along with a β-diketone moiety. This structural arrangement is similar to that of curcumin, which contributes to its potent free-radical–scavenging ability.

Action: Strong antioxidant; inhibits free radicals and NO synthesis.

It inhibited free-radical DPPH and was shown to have antioxidant activity on arachidonic acid metabolism and NO radical synthesis. [13]

6.Name - Amlavetas

Latin name –*Garcinia pedunculata Roxb.*

Family – Clusiaceae

Rasa- Amla

Guna – Laghu Ruksha

Virya- Usna

Vipaka- Amla

Phytoconstituents: Medicinal plants are typically characterized through qualitative phytochemical screening of their extracts. Such studies on secondary metabolites have revealed the presence of diverse bioactive compounds, including alkaloids, saponins, flavonoids, glycosides, carbohydrates, phenolic compounds, proteins, fixed oils and fats, and amino acids. These constituents largely contribute to the therapeutic properties of the plants.

Action: Antimicrobial, antioxidant, anti-inflammatory.

Bioactive compounds, alkaloids, saponin, flavonoids are known to have activity against pathogens and therefore assist the antimicrobial activities of medicinal plants (Ghoshet al., 2010)[14]

7. Name - Kuvala

Latin name –*Zizyphus sativa Gaertn.*

Family – Rhamnaceae

Rasa- Amla, Madhura

Guna – Guru

Virya- Sita

Vipaka- Madhura

Phytoconstituents: Ziziphine (alkaloid), quercetin, rutin, vitamin A[15] polysaccharides[16] gallic acid[17] vitamin C[18]

Action: Cardioprotective; immunomodulatory; antioxidant.

8. Name- Badara

Latin name – *Zizyphus jujuba Mill*.

Family – Rhamnaceae

Rasa- Amla , Madhura

Guna – Guru

Virya- Usna

Vipaka- Madhura

Phytoconstituents:

Ziziphus jujuba, an indigenous plant, demonstrates significant medicinal potential due to its diverse secondary metabolites. Phytochemical studies have identified 64 alkaloids, 16 glycosides and flavonoids, 14 terpenoids, and several other bioactive compounds.The importance of such constituents in health products and food supplements is ignored[19]

Action: Vasodilator; inhibits platelet aggregation; strengthens myocardial tissue.

A neo-lignan extracted from the leaves of *Ziziphus mauritiana* has been shown to enhance the release of endogenous prostaglandin I_2—one of the strongest natural inhibitors of platelet aggregation and an effective vasodilator—by approximately 25.3% in rat aorta at a concentration of 3 µg/mL.

9. Name -Dadima

Latin name - *Punica granatum Linn.*

Family - Lythraceae

Rasa – Madhura, Amla, Kashaya

Guna -Laghu, Snigdha

Virya -Anusna

Vipaka -madhura

Phytoconstituents: Analyses of total phenolic and flavonoid content indicate that pomegranate is one of the richest fruits in bioactive phenolic compounds, including punicalagin, anthocyanins, punicalin, gallic acid, and ellagic acid.

Action: Improves vascular elasticity; antihypertensive; rich antioxidant source.

10. Name - Matulunga

Latin name- *Citrus medica Linn.*

Family - Rutaceae

Rasa – Madhura, Amla

Guna -Laghu, Snigdha

Virya -Ushna

Vipaka – Amla

Phytoconstituents: The plant contains several important bioactive terpenoids, including limonene, γ-terpinene, citral, and linalool, which contribute to its aromatic, antioxidant, and therapeutic properties [20]
Action: Rich in Vitamin C; antioxidant; improves endothelial function.

Amra[21]	13.2–92.8 mg/100gm
Amratak[22]	22.63mg/100gm
Lakucha[23]	42-55mg/100gm
Karmarda[24]	9-72mg/100gm
Vrikshamla [25]	3.3/100gm
Amlavetasa[26]	36.98mg/100gm
Badar/kuval[27]	192-359mg/100gm
Matulunga[28]	17-54mg/100gm
Dadima[29]	10.2mg/100gm

Selected Drugs of *Hridaya Mahakashaya* and Their Phytoconstituents

Discussion

Medicinal plants included in *Hridaya Mahakashaya* are rich sources of vitamin C and diverse phytochemicals such as tannins, polyphenols, and flavonoids. Collectively, these compounds help reduce oxidative stress and protect lipoproteins and the vascular endothelium from damage. Modern pharmacological studies have confirmed the cardioprotective effects of herbs like *Emblica officinalis*[30] and *Punica granatum*[31], demonstrating their ability to lower cholesterol, enhance vascular elasticity, and prevent atherosclerosis. Vitamin C, in particular, is essential for collagen synthesis, maintaining vascular integrity, and regulating endothelial function[32]. Thus, the classical Ayurvedic concept of Hridaya Mahakashaya aligns closely with contemporary preventive strategies in cardiology.

Conclusion

The Ayurvedic preparation Hridaya Mahakashaya offers scientifically supported benefits for cardiovascular health, owing to its content of vitamin C and other bioactive phytochemicals. Incorporating these herbs into the diet or using them therapeutically may help reduce oxidative stress, support vascular

function, and safeguard heart health. Nonetheless, additional clinical and pharmacological research is needed to fully establish their efficacy in modern cardiology.

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