

Standardization of Hridyarnava Rasa

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Abstract

In this modern era, lifestyle has changed very much and this caused many diseases. One of these is heart problem such as Hridshool (Angina Pectoris) is very common heart disease.

Ayurveda has recommended many Rasoushdies & herbal formulations for Hridshool, like Arjun Ksheer paka and Hridyeshwar Rasa etc. There are many methods of preparing Hridyarnava Rasa in different textbooks, but I found in *Rasendra Chintamani*, the method of preparing Hridyarnava Rasa best because it contains 2 parts of Tamra Bhasma (Contains properties as Madhur, Kshaya Rasa, Laghu Guna, Tridosahara) and prepared in fresh decoction of Triphala and fresh extract of Kakmachi.

The study is intended to evaluation of Hridyarnava Rasa. This medicine tested with standard parameters pH (4.33), loss on drying (5.52%) and ash content at 450-550°C (55.55%). The acid insoluble ash at 650-750°C and loss on ignition at 800°C are 1.84% and 56.4% respectively. The AAS test showed very low (in ppm) concentration of heavy metals in drug. So it is consumer friendly, highly potent and easy to taken and was able to cure the disease, Hridshoola (AP) to a great extent.

Keywords: Rasa; Standardization; Hridshoola (Angina Pectoris).

Introduction

Ayurveda is the science of life. Rasaushadhies are backbone of the Ayurvedic system of medicine. These are quick in action and used in very small doses. The knowledge of Rasa-Shastra was known to the people since the Vedic Kala. Human body contains a number of minerals, which fulfill the metabolic importance to have a sound health. Use of mineral preparations as drug is playing a positive role in specific wing of Ayurveda, known as Rasa Shastra.

The present study on "*Standardization of Hridyarnava Rasa (Rasendra Chintamani)*" was taking for various parameters like appearance, color, taste,

pH value, loss on drying, loss of ignition, Acid insoluble ash, AAS test, gravimetric analysis for sulfur estimation.

In this work main objective was to evaluate Hridyarnava Rasa, especially for heavy metals.

Materials & Methods

Hridyarnava Rasa (Rasendra Chintamani) was procured from deptt. of Rasa Shastra and B.K. of Rishikul Ay. State P.G. College, Haridwar, which was prepared by taking one part of Shuddha Parada (pure mercury), one part of Shuddha Gandhaka (pure sulfur) and two parts of Amritikrit Tamara Bhasma. It should be mixed in a mortar along with Triphala Kwath (decoction) and Makoya Swarasa (*Solanum Nigrum* extract) for 1 day and mashed thoroughly. From this mixture, tablets equal to gram seeds should be prepared.

Physicochemical analysis of Hridyarnava Rasa

Physical evaluation: Physical parameters, such as appearance (fine, smooth powder), color (black) and taste (tasteless) were checked visually.

Carbon di-sulfide extract yield the reactions characteristic of free sulfur.

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pH value: pH of filtrate obtained from 10% aqueous suspension of "Hridyarnava Rasa" was determined by Mettler Toledo MP – 220 pH meter as per instruction. Instrument was previously calibrated with buffer pH 4.01 & 9.21. The pH of the test solution at 25°C was 4.33.

Loss on drying: Procedure set forth here determines the amount of volatile matter (i.e. water drying off from the drug). Place about 10 gm. of drug (without preliminary drying) after accurately weighing it in a tarred evaporating dish dry at 105°C for 5 hrs & weigh. Then, they were allowed to cool in a desiccator and weighed to constant weight. The loss in weight represented the loss on drying. It was 5.58 & 5.48 of 2 samples respectively i.e., average was 5.52%.

Determination of total ash: Incinerate about 2 or 3 gm accurately weighed of the ground drug in tarred platinum or silica dish up to temperature 450°C, then

cool and weigh. The ash content of 2 samples was 55.99 and 55.08 respectively i.e., average was 55.55%.

Loss on Ignition: If a carbon free ash can't be obtained. Exhaust the charred mass with hot water, collect the residue on an ash less filter paper, incinerate the residue & filter paper then, evaporate to dryness & ignite at a temperature not exceeding 450°C. The loss in weight represented the loss on ignition. It was 56.4%.

Acid insoluble ash: Boil the ash obtained from total ash for 5mts with 25ml of Dil. Hydrochloric acid, called the insoluble matter in gooch crucible, wash with hot water and ignite to constant weight. Calculate the percentage of acid insoluble ash with reference to the air dried drug was 1.76 & 1.92 respectively. So, the acid insoluble ash at 650-750°C was found 1.84%.

S. No.	Name of Test	Result Obtained		
		Result of 2 samples		Average %
1.	Loss on drying (at 110°C)	(a)	5.58	5.52%
		(b)	5.48	
2.	Ash content (at 450-550°C)	(a)	55.99	55.55%
		(b)	55.08	
3.	Acid insoluble Ash (at 650-750°C)	(a)	1.76	1.84%
		(b)	1.92	
4.	Loss on ignition (at 800°C)			56.4%

Atomic Absorption Spectrophotometer Test

0.1 gm of each sample (Tamra Bhasma, Kajjali and Hridyarnava Rasa) was weighed & mixed with 20ml of acid mixture (1:3 H₂SO₄ : HNO₃) separately. The mixture was then kept for digestion on hot plate for 2-3 hrs. The digested samples were filtered through paper pulp and the volume was made up to 100 ml individually with double distilled water. These solutions were directly used for analyzing As, Fe, Pb & Cd in various samples through AAS, while for Cu analysis solution were diluted, 10 times separately and then, analyzed through AAS. All elements were analyzed against their individual standards of various

concentrations range as per prescribed standard procedure. The reading was calculated as follows:

$$\% \text{ Concentration} = \frac{\text{Reading at instrument} \times \text{make up volume in 1 Ltr.} \times \text{Dil. factor} \times 100}{\text{Wt. of sample in mg}}$$

Make up volume	=	100 ml (0.1 Ltr.)
Dil. factor	=	1 (except Cu element: for it 10)
Wt. of sample	=	0.1 gm (100 mg)

The samples were analyzed with 3 readings of each element. The average of reading is :-

Element %

S. No.	Sample	Cu	Fe	S	As	Pb	Cd
1.	Copper (Tamra Bhasma)	53.33	124	15.89	< 1 ppm	1.86	3.93
2.	Kajjali	54.12	1.43	18.60	< 1 ppm	1.47	4.51
3.	Hridyarnava Rasa	29.62	1.72	16.98	< 1 ppm	1.053	4.53

* Detection limit for AAS is ppm level. It means conc. is < 1 ppm i.e. in Traces (Below detection limit)

Gravimetric Analysis (For Sulfur estimation): All the samples were weighed & analyzed separately for S

estimation. The procedure was followed separately for all the 3 samples:

S. No.	Sample	Wt. of crucible with precipitate	Wt. of empty crucible	Wt. of BaSo ₄	S Content
1.	Cu ₁	20.786	19.645	1.141	0.157
2.	Cu ₂	28.937	27.765	1.172	0.161
3.	D ₁	32.442	31.195	1.246	0.171
4.	D ₂	21.057	19.832	1.225	0.168
5.	K ₁	29.461	28.132	1.329	0.183
6.	K ₂	22.385	21.007	1.378	0.189

Estimation of mercury present as sulfide: After calculation, in sample of Kajjali, Hg was found 84% & in sample of Hridyarnava Rasa, Hg was found 26.50%.

The present work of standardization showed that the drug had heavy metals in ppm level i.e. the drug is safe to use by patients. As considering treatment option, this drug is really very helpful in treating Hridshool (Angina Pectoris). Because, all hidrogas are long term chronic diseases, so it will be better to use this medicine for long term use for better patient compliance.

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