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PHARMACEUTICO - ANALYTICAL STUDY OF *SAPTAMRUTA VATI* W.S.R. TO *RASARATNA SAMUCCHAYA*

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ABSTRACT

Saptamruta vati is an Ayurvedic formulation containing herbo mineral compounds. *Rasaratna samucchay* text claims that *Saptamruta vati* is indicated against all types of *Shwasa roga* (throat infections). In the present study *Saptamruta vati* was prepared in accordance with description of Rasaratna samucchaya. *Saptamruta vati* was investigated for Physico- chemical analysis with the help of pH, Loss on drying, Ash value, water soluble ash & acid insoluble ash. Analysis revealed the findings of results were close to its standard value and has shown the purity of *Saptamruta vati*. Qualitative test was conducted by AAS; findings suggested the presence of mercury was 3.43 % & assay of Sulfur was 7.12 %.

Keywords: *Rasoushadhi* (Herbo-mineral formulations), *Saptamruta vati*, *Shodhana* (Purification), *Kajjali*, *Bhavana* (Trituration), Analytical parameters.

INTRODUCTION: *Rasashastra* is the science where Mercury, metals, minerals are used in the treatment of several diseases. In this science many herbo-mineral formulation are mentioned are known as *Rasoushadhi*. These are unique, act in lesser dose, highly potent & provide instantaneous effect. These days life threatening diseases have increased in everyday life. Herein circumstance, *Rasoushadhi* can prove most excellent by its *Rasayana* (Rejuvenate) property. However intended for better result, there is necessitate for the correct manufacturing techniques. Inappropriate technique results in harmful effects in humans. In this concern, there is requiring for proper standardization of the *Rasoushadhi*.

Diseases related to Respiratory tract mainly are the Asthma & Cough being recognized major health problem. These are the widespread chronic inflammatory conditions affect the people of all age. These causes respiratory dysfunction combine with brutal attack, which needs urgent health care. Hence in the present day there is need to find alternative herbo mineral formulation against Asthma & Cough.

In *Rasashastra* science, there are number of formulations have been described that claim to manage Asthma & Cough. Out of which, *Saptamruta vati* is one of the considerable formulation mentioned in *Rasaratna samucchay* text. *Saptamruta vati* is indicated for *Shwasa* (Asthma) & *Kasa* (Cough). The ingredients of *Saptamruta vati* are purified *Parada* (Mercury) & *Gandhaka* (Sulfur), *Pippali, Haritaki, Vibhitaki, Vasa, Bharangi* & *Babbul twak*[1]. With this study to confirm the suitability for the patient, an attempt was made to establish the standards for standardization of *Saptamruta vati.*

AIM & OBJECTIVE OF THE STUDY:

1. Preparation of *Saptamruta Vati* by classical method.

2. The Pharmaceutico-Analytical study of *Saptamruta Vati*.

MATERIALS & METHOD:

Drug Source: Genuine raw materials was procured from local market & authenticated as per Ayurvedic criteria. Raw drugs of *Parada & Gandhaka* were purified by classical method.

Materials:

Table no. 1: Ingredients of *Saptamruta vati*

Sl no	Ingredients	Parts used	Ratio	Quantity
1.	*Shodhita Parada*		1 part	20 mg
2.	*Shodhita Gandhaka*		2 part	40 mg
3.	*Pippali (Piper longum)*	Dried Fruit	3 part	60 mg
4.	*Haritaki (Terminalia chebula)*	Dried Fruit	4 part	80 mg
5.	*Vibhitaki (Terminalia bellirica)*	Dried Fruit	5 part	100 mg
6.	*Vasa (Adhatoda vasica)*	Dried Root	6 part	120 mg
7.	*Bharangi (Clerodendrum serratum)*	Dried Root	7 part	140 mg
8.	*Babbul (Acacia nilotica)*	Dried Bark	Q.S	1.5 kg

Pharmaceutical process:

a. **Preparation of *Kajjali*[4]:** *Shodhita Parada* 20 gm, *Shodhita Gandhaka* 40 gm was taken to *khalwa yantra* & triturated for one time. Triturating was continued till the powders become amalgamated. Which attained blackish color, very fine state, *Nishchandra* (Lusterless), *Shlakshna* (Smoothness) & *varitara* (floats on the water surface). These features indicated completion of *Kajjali* preparation. This *Kajjali* was taken to prepare *Saptamruta vati*.

b. **Collection of *Pippali, Haritaki, Vasa, Bharangi churna*:** The plant drugs were collected in fine powder form.

c. **Preparation of *Babbul kwath*(Decoction)[5]:** *Babbul twak yavakut churna* 1.5 kg & water 24 liter (1:16 parts) was boiled on *mandagni*. Till the quantity of water reduced to 1/8th part (3 liters). Then kwatha was filtered through cloth.

d. **Preparation of *Saptamruta vati*[6]:** *Kajjali* was placed in *khalwa yantra*. Then above all ingredients (Table no 1) were mixed one by one in to this *kajjali*. This mixture was triturated with *Babbula kwatha* till the mixture became semi-solid form (paste like appearance). In this way, 21 *Bhavana* (triturating process) was carried out to this combination. Eventually mixture was triturated till it reaches thick state and prepared in to Tablet form with weight of 262 mg. Then dried under shade & stored under air tight container. Thereafter *Saptamruta vati* was subjected to analytical parameters (Table no 2 & 3).

OBSERVATION & RESULTS:

Table no 2: Finished product *Saptamruta vati*

Touch	Color	Odor	Taste	Wt. before Preparation	Wt. after Preparation
Rough	Grayish	Characteristics	Bitter	560 gm	570 gm

Table no 3: Analytical study of *Saptamruta vati*

Sl no	Test	Values
1	Average weight (mg)	262
2	Disintegration time	15.44 sec
3	pH	8.06
4	Friability	2.04
5	Hardness $(kg/cm)^2$	2.1
6	Loss on drying(% w/w)	7.35
7	Loss on ignition (% w/w)	88.53
8	Total ash (% w/w)	11.47
9	Acid insoluble ash (% w/w)	0.94
10	Acid soluble ash (% w/w)	10.46
11	Water soluble ash (% w/w)	7.59
12	Assay for Hg (% w/w) by AAS	3.43
13	Assay for Sulfur (% w/w)	7.12

DISCUSSION:

Pharmaceutical study:

In the present work standard preparation of *Saptamruta vati* was prepared and analyzed with Physico-chemical parameters. Standards were determined for this preparation as per Indian pharmacopoeia. The color of sample was Grayish, rough in touch, characteristics odor and bitter in taste. After completion of process, total weight was found increased by 10 gm because of *Bhavana* (Table no 2). This indicated might be the *Bhavana Drava* (*Babbul kwatha*) was combined to each particle of the *Dwigunabali jarita Kajjali* which helps in increasing the weight as well as potency.

Analytical study:

The Disintegration time was 15.44 min; tablet was disintegrated within the prescribed time. pH was 8.06; indicates the product is alkaline in nature. Friability was 2.04; this is indicated acceptable physical strength of formulation. Hardness was 2.1 kg/cm^2; this indicates prepared tablet was not brittle in nature and suggested suitability. Loss on drying at 110^0c was 7.35 %w/w; shown that moisture content is in minimum level & prevents degradation of the preparation. Total Ash value was 11.47w/w; this value was found to be reasonably low, this reveals tablet was free from unwanted organic / inorganic compounds & also indicated low contamination. Water soluble ash was 7.59 % w/w; this shows the presence of inorganic compound. Acid insoluble ash was 10.46 %w/w; this shows less adherent dirt and sand particles. Atomic Absorption of Spectroscopy for the limit of detection of mercury was 3.43 % w/w. Assay for Sulfur: presence of Sulfur was 7.12 % w/w (Table no 3).

CONCLUSION:

- The present study involved the preparation and standardization of *Saptamruta vati* a herbo mineral formulation & assessed by the Physico chemical analysis.
- The weight ratios of *Parada* & *Gandhaka* is 1:2 parts in the preparation of *Kajjali*. This may potentiate the efficacy of *Kajjali* as well as the formulation.

- Physico-chemical values interpret the purity and strength of the preparation.
- The values obtained from the analysis of *Saptamruta vati* can be considered as reference for its standardization.

Scope of the study:

- Additional analytical study is required further to investigate the *Saptamruta vati* to set the reference standard for the quality control and quality assurance.
- This attempt offers an onset to continue by experimental and clinical study.

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Raw Ingredients:

Raw *Parada*

Raw *Gandhaka*

Pippali Phala

Haritaki Phala

Vibhitaki Phala

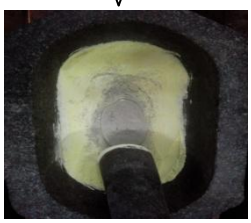
Vasa Mula

Bharangi Mula

Babbul twak

Shodhita Parada

Shodhita Gandhaka



Processing of *Kajjali* ***Kajjali***

Mixing of Ingredients

Preparation of *Saptamruta vati*