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Pharmaceutico-Analytical Study of *Bhuvaneshwara Rasa*

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ABSTRACT

Background: *Bhuvaneshwara Rasa* is an *Ayurvedic* preparation mentioned in *Bhaishajya Ratnavali* used in the treatment of all types of *Atisara* (diarrhea). There is a lack of data regarding the standardization of pharmaceutical process and analytical profile of *Bhuvaneshwara Rasa*. **Aim:** To prepare *Bhuvaneshwara Rasa* and analyse it using various physicochemical parameters. **Materials and methods:** *Bhuvaneshwara Rasa* was prepared as per the guidelines mentioned in Ayurvedic Pharmacopoeia of India. During the pharmaceutical procedure, all the ingredients were mixed thoroughly and triturated with *jala*. The pharmaceutical and analytical parameters were compiled, and data was recorded. **Results:** *Bhuvaneshwara Rasa* after preparation showed increase of 10% yield. The values of physicochemical parameters of *Bhuvaneshwara Rasa* were as follows: pH 5.69, loss on drying 6.4%, acid insoluble ash 2.5, total ash 8.72%, hardness 3.5 kg, friability 0.1%.TLC band blue at 254nm revealed. **Conclusion**: Data generated from pharmaceutical, analytical studies and TLC can be used to develop a preliminary standard profile for the formulation *Bhuvaneshwara Rasa.*

Key words: *Bhuvaneshwara Rasa, Atisara, Standardization, TLC.*

INTRODUCTION

Bhuvaneshwara Rasa is a Ayurvedic preparation mentioned in *Atisara Chikitsa Prakaranam* of *Bhaishajya Ratnavali.*[1] Which is a typical combination of drugs to combat the disease *Atisara*. The combination of *Saindava, Triphala, Yamani, Bilva Peshika, Gruhadhooma* are capable to overcome the disease *Atisara.* In this formulation *Saindhava* [2] and *Triphala*[3] acts as *Agni Deepaka, Bilva*[4] and *Yamani*[5] acts as *Deepana* and *Pachana Karma, Bilva Peshika* helps in *Sthambhana,* and is also *Grahi. Triphala and Yamani* acts *Shoolahara. Triphala* also act as *Krimighna Karma. Gruhadhooma* helps in *Vishahara.* The dose of *Bhuvaneshwara Rasa* as per the reference is one *Masha*.

Pharmaceutical study is the study of drug manufacturing. As like healing drug manufacturing too is an art. In treating an ailment, the first and foremost thing is preparation of the drug should be proper. Drug standardization mainly intended to guarantee the quality, efficacy, and uniformity of the final product.[6] Standardization starts from the raw drug collection and extends up to the manufacturing of final products. Hence the present study is planned to

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prepare the selected drug following all the methods mentioned in classical texts.

Aims and Objectives

This study aimed to develop Standard Manufacturing Procedure of *Bhuvaneshwara Rasa* and to develop analytical profile of *Bhuvaneshwara Rasa.*

Materials and Methods

Collection of Raw Materials

The major raw materials were collected:

1. *Saindava*: 500 gm was collected from Thrissur, Kerala
2. *Triphala (Haritaki, Vibhitaki, Amalaki)*: Each 500 gm from Thrissur, Kerala
3. *Yamani*: 500gm from Thrissur, Kerala
4. *Bilva peshika*: 500 gm from local area, Thrissur, Kerala.
5. *Gruhadhooma*: Collected from local area, Thrissur, Kerala.

Authentication of Raw Materials

Herbal drugs (*Triphala, Yamani, Bilva peshika*) are done in Department of *Dravyaguna,* Ramakrishna Ayurvedic medical College, Yelahanka, Bangalore.

Place of Study

Teaching pharmacy, Department of *Rasashastra* and *Bhaishajya Kalpana,* Ramakrishna Ayurvedic Medical College and Hospital, Yelahanka, Bangalore.

Table 1: Showing ingredients and composition of *Bhuvaneshwara Rasa*.

SN	Ingredient	Latin name	Composition
1.	*Saindava*	Rock salt	1 Part
2.	*Triphala*	-	1 Part
3.	*Yamani*	*Carum copticum Benth & Hook.*	1 Part
4.	*Bilvapeshika*	*Aegle marmalose Corr.*	1 Part
5.	*Gruhadhooma*	Chimney soot	1 Part
6.	*Jala*	Water	Q.S

Pharmaceutical study

Pharmaceutical stride involved in preparation of *Bhuvaneshwara Rasa.*

1. Powdering of raw materials.
2. Preparation of *Triphala Choorna.*
3. Preparation of homogeneous mixture of *Bhuvaneshwara Rasa* ingredients.
4. Adding *Jala* and doing *Bhavana* till it dries completely.

Method of preparation of *Bhuvaneshwara Rasa*

- All herbal drugs were washed with water and dried and powdered finely.
- All the ingredients are weighed accurately.
- The homogeneous mixture of *Saindhava, Triphala, Yamani, Bilva Peshika,* and *Gruhadhooma* was taken.
- Required quantity of water was added and triturated until consistency to roll the pills.
- A *Vati* of one *Masha* (1 gm) size was prepared and 100 such *Vati*s was prepared preserved in air tight container.

Table 2: Showing quantity of ingredients used in *Bhuvaneshwara Rasa* preparation.

SN	Ingredient	Quantity(g)
1.	*Saindava*	20
2.	*Triphala*	20
3.	*Yamani*	20
4.	*Bilvapeshika*	20
5.	*Gruhadhooma*	20
6.	*Jala*	q.s

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Precaution

- All ingredients should be dried and powdered well.
- The spilling of drug should be avoided while trituration.
- *Bhavana* was done well.
- *Vati* prepared after getting the consistency to roll the pills.
- The mixture was not allowed to dry.
- Uniformity of weight was maintained while preparing *Vati.*

Analytical Study

Physico-chemical parameters pH, Loss on drying, Acid insoluble ash, Total ash, and Hardness, Friability, Disintegration time, TLC were carried out at Skanda Life Sciences Pvt. Ltd, Bangalore.

OBSERVATION AND RESULTS

Pharmaceutical study

The whole mixture turned to blackish grey colour. At one stage the mixture becomes a single bolus not sticking to the surface of *Khalwa Yantra.* At this stage, small amount of the mixture was taken and tried to roll into *Vati*s and this was achieved. *Vati* is rough in nature and blackish grey in colour.

Table 3: Showing the result of preparation of *Bhuvaneshwara Rasa.*

Quantity taken	*Saindhava*	20 gm
	Triphala	20 gm
	Yamani	20 gm
	Bilvapeshika	20 gm
	Gruhadhooma	20 gm
	Jala	Q.S
Finished product obtained		110 gm
Loss		-
Gain		10 gm
Percentage of gain		10%
Time duration		2.30 hrs.

Table 4: Showing the result of *Subhavitha Lakshanas* as per R.T.

Tests	Findings
Rolling	Can be done
Touch	Soft and non-sticky
On pressing	Becomes flattened

Table 5: Showing the organoleptic characters of *Bhuvaneshwara Rasa.*

Characters	Results
Rupa (Colour)	Dark brown
Rasa (Taste)	Pungent
Gandha (odour)	Aromatic
Sparsha (Touch)	Fine

Analytical study

Physicochemical evaluation of *Bhuvaneshwara Rasa* was carried out and data was arranged in table 6. TLC evaluation revealed *Bhuvaneshwara Rasa* at 366 nm, visible light and 254 nm. Fig 1a,1b,1c.

Table 6: Results of the evaluation of Bhuvaneshwara *Rasa*

Parameters	Result
pH	5.69
Loss on drying at 105^0C	6.4%
Acid insoluble ash	2.5%
Total ash	8.72%
Hardness	3.5±0.5 kg
Friability	0.15%

Disintegration Time

Table 7: Showing the disintegration time report.

Time (min)	Wt. of the tablet (mg)
0	271.2
10	253.8

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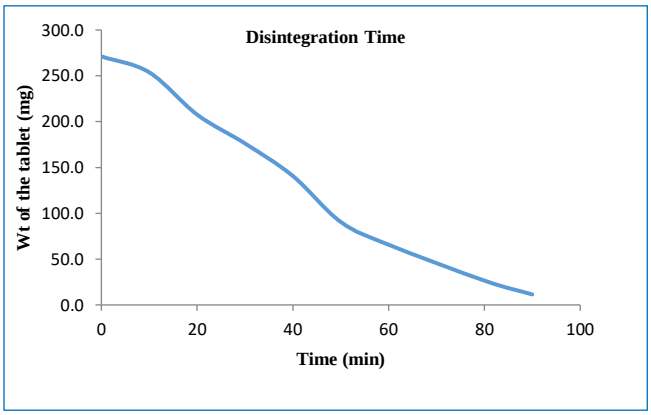
20	207.7
30	176.2
40	140.7
50	90.6
60	65.7
80	26.5
90	11.5

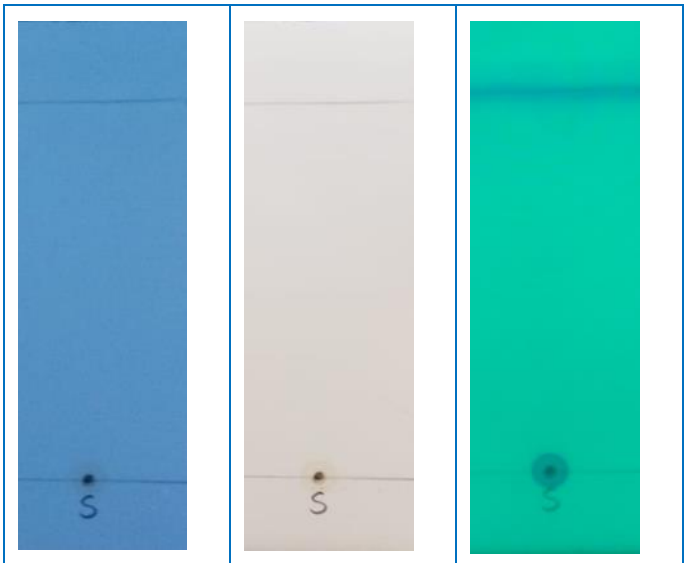
Graph No.1: Graph showing the disintegration of tablet w.r.t time in min



Disintegration time of *Bhuvaneshwara Rasa* was 94 min. With 4.2% left over.

TLC

Fig 1a,1b,1c: TLC chromatogram for *Bhuvaneshwara Rasa* at 366 nm, visible light and 254nm



366nm	Visible Light	254nm

Table 8: Showing the TLC report.

Sample	TLC Band at 254 nm	Retention factor	TLC Profile characteristics		
			366 nm	254 nm	Visible light
Bhuvaneshwara *Rasa*.	1	0.068	-	Blue	-
		1	-	Blue	-

DISCUSSION

Bhuvaneshwara Rasa is a *Khalveeya Rasayana* with a unique Herbo-mineral combination of drugs to treat *Atisara*. It was found in *Bhaishajya Ratnavaali Atisara Chikitsa Prakaranam.* Its ingredients include, *Saindava* (1part), *Triphala* (1part), *Yamani* (1part), *Bilvapeshika* (1part), *Gruhadhooma* (1part), and *Jala* (Quantity sufficient). With the classical preparation and the properties of the drugs which are present, it shows the *Atisaragna* property. To prepare the selected trial drug strictly according to classical reference as many as 8 experiments were carried out *Saindhava Lavana* is pounded and filtered through sieve. Here loss 3% is due to pounding and filtering. While preparing *Amalaki Churna*, 20% loss observed is due to pounding and filtering. *Vibhitaki* is pounded and filtered through sieve. Here loss 15% is due to pounding and filtering. In *Haritaki Churna* preparation loss 10% is due to pounding and filtering. *Triphala Churna* was prepared by mixing the *Haritaki, Vibhitaki*, and *Amalaki choorna* homogeneously. Loss is 3.3% due to spilling out while mixing the ingredients. *Yamani* is pounded and filtered through sieve. Here loss 3.3% is due to oily content in *Yamani,* pounding and filtering. *Bilva Peshika* is pounded and filtered through sieve. 30% of loss is due to pounding and filtering. *Bhuvaneshwara Rasa* was prepared by after mixing the ingredients homogeneously, water was added and triturated until consistency to roll the pills and *Vati* was prepared. After the preparation of *Bhuvaneshwara Rasa*, percentage of gain is 10% this might be due to the *Bhavana* procedure. *Bhavna* reduces the particle size of the final product and increases bioavailability of formulation.

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As a part of standardization of the drugs, may it be the raw drug, in process drugs or the finished product; the analytical parameters are to be tested and logical reasoning has to be given. Here for the *Bhuvaneshwara Rasa* the analytical studies performed and noted are Oraganoleptic characters, Ph, Loss on drying at 105°C, Acid insoluble ash, Total ash value, Hardness test, Friability test, Disintegration time, TLC, Solubility. Ph of *Bhuvaneshwara Rasa* is 5.69 which indicate mild acidic in nature. According to Ph partition concept, weak acids will have higher absorption in the highly acidic stomach, drugs that are in weak acids will be present mainly in their non-ionic form. So, *Bhuvaneshwara Rasa* is absorbed in stomach. Loss on drying at 105°C value of *Bhuvaneshwara Rasa* is 6.4%, shows the moisture content present in the *Bhuvaneshwara Rasa.* Acid insoluble ash indicates the genuinity of the product. Value of *Bhuvaneshwara Rasa* is 2.5%. Total ash value of *Bhuvaneshwara Rasa* 8.72%. This shows the presence of organic matter, genuinely and method of preparation. Hardness test value of *Bhuvaneshwara Rasa* observed as 1kg/cm^2 indicates that it cannot be too hard to alter disintegration or release of the product. Friability test, the weight of the tablets weighed before and after 100 revolutions showed weight loss of nil. This shows that it can withstand abrasions in packing, handling and transporting. Disintegration time of *Bhuvaneshwara Rasa* was 94 mins with 4.2% left over. TLC chromatogram for *Bhuvaneshwara Rasa* at 366 nm, visible light and 254 nm. Solubility, *Bhuvaneshwara Rasa* sparingly soluble in water.

CONCLUSION

This study deals with the pharmaceutico analytical evaluation of *Bhuvaneshwara Rasa.* Final product sample of *Bhuvaneshwara Rasa* was fine, dark brownish in colour with an aromatic smell and pungent taste. Physico-chemical analysis helps to generate a preliminary standard analytical profile for *Bhuvaneshwara Rasa* as there is no standard for *Bhuvaneshwara Rasa* is available in the pharmacopoeia. So, data generated by this study can be used as reference for the identity and purity of the formulation *Bhuvaneshwara Rasa.*

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