



## PHARMACEUTICAL STUDY AND ANALYTICAL STANDARDIZATION OF *SUTABHASMA YOGA*: A AYURVEDIC CLASSICAL HERBO-MINERAL FORMULATION

Mahantesh Pujeri<sup>1\*</sup>, Kasinath Hadimur<sup>2</sup>, K. A. Patil<sup>3</sup>

<sup>1</sup>Final Year PG Scholar Dept. of RSBK, BLDEAS AVS AMV Vijayapura.

<sup>2</sup>Asso. Prof. Dept. of RSBK, BLDEAS AVS AMV Vijayapura.

<sup>3</sup>Prof. and HOD of RSBK, BLDEAS AVS AMV Vijayapura.

**How to cite this Article:** Mahantesh Pujeri<sup>1\*</sup>, Kasinath Hadimur<sup>2</sup>, K. A. Patil<sup>3</sup>. (2026). PHARMACEUTICAL STUDY AND ANALYTICAL STANDARDIZATION OF *SUTABHASMA YOGA*: A AYURVEDIC CLASSICAL HERBO-MINERAL FORMULATION. World Journal of Advance Pharmaceutical Sciences, 3(8), 59-64.



Copyright © 2026 Mahantesh Pujeri\* | World Journal of Advance Pharmaceutical Sciences

This is an open-access article distributed under creative Commons Attribution-Non Commercial 4.0 International license (CC BY-NC 4.0)

### Article Info

Article Received: 24 June 2026,

Article Revised: 14 July 2026,

Article Accepted: 04 August 2026.

### \*Corresponding author:

**Mahantesh Pujeri**

Final Year PG Scholar Dept. of  
RSBK, BLDEAS AVS AMV  
Vijayapura.

DOI: <https://doi.org/10.5281/zenodo.21827708>

### ABSTRACT

**Introduction:** *Sutabhasma Yoga* is a classical herbo-mineral formulation described in *Rasendra Sara Sangraha* for the management of *Apasmara*. The therapeutic efficacy, safety and quality of herbomineral formulations depend on proper pharmaceutical processing and analytical standardization. Scientific documentation of the pharmaceutical procedures and physicochemical characteristics is essential to establish quality control parameters and ensure reproducibility of classical *Ayurvedic* formulations. **Materials and Methods:** *sutabhasma Yoga* was prepared according to the classical procedures described in *Rasendra Sara Sangraha*. The pharmaceutical process included *Parada Shodana*, *Gandhaka Shodana*, *Kajjali Nirmana*, *Navasagara Shodana*, *Bhavana* with *Nimbu swarasa*, preparation of *Rasasindura*, *Medya Kashaya Bhavana* to obtain *Sutabhasma Yoga*. The finished formulation was subjected to organoleptic evaluation and physicochemical analysis including solubility, moisture content, total Ash value, pH and specific gravity using standard analytical procedures. **Results:** The final product was obtained as a reddish-brown, odourless, tasteless, smooth fine powder. Physicochemical evaluation showed that the formation was insoluble in distilled water, methanol, ethanol, xylene, chloroform, hydrochloric acid and sulphuric acid. The moisture content was 3.45, Total Ash value 58.25, pH 8.0 and specific gravity 1.004, indicating satisfactory physicochemical characteristics. **Discussion:** The sequential pharmaceutical procedures ensured proper purification and processing of the ingredients, resulting in a stable herbomineral formulation. The low moisture content suggests adequate drying and better storage stability, while the high ash value reflects the presence of processed mineral constituents. The mildly alkaline pH and consistent organoleptic characteristics further support the quality and uniformity of the prepared formulation. These findings provide preliminary quality control standards for *Sutabhasma Yoga*. **Conclusion:** *Sutabhasma Yoga* was successfully prepared following the classical pharmaceutical procedures. The pharmaceutical observation and physicochemical evaluation established quality control parameters that may serve as reference standards for the standardization and scientific validation of this classical herbomineral formulation.

**KEYWORDS:** *Sutabhasma Yoga*, *Rasendra sara Sangraha*, Pharmaceutical standardization, Physicochemical evaluation, herbo-mineral formulation.

## INTRODUCTION

Rasashastra is a specialized branch of Ayurveda that deals with the pharmaceutical processing of metals, minerals and herbal drugs to prepare potent therapeutic formulations. Various pharmaceutical procedures such as *Shodana*, *Marana*, *Bhavana* and *Kupipakwa Rasayana* are employed to convert raw materials into safe, stable and therapeutically effective medicines. Proper pharmaceutical processing not only enhance the therapeutic efficacy of these formulations but also minimizes toxicity and improves bioavailability. Therefore, standardizations are essential for ensuring their quality, safety and reproducibility.<sup>[1,2]</sup>

*Sutabhasma Yoga* is a classical herbomineral formulation described in *Rasendra Sara Sangraha* under *Apasmara Chikitsa* for the management of *Apasmara*. The formulation contains *Rasasindura* along with *Medya* drugs such as *Brahmi*, *Shankapushpi*, *Vacha*, *Kusta* and *Ela*, administered with *Medya Kashaya*. These ingredients possess *Medya*, *Rasayana*, *Vata-Kaphahara* & neuroprotective properties, which justify their traditional use in nuerological disorder.<sup>[3]</sup>

The therapeutic efficacy of herbo-mineral formulations depends largely on the quality of pharmaceutical processing. Purification of *Parada* and *Gandhaka*, preparation of *Kajjali*, *Kupipakwa Rasayana* (*Rasasindura*), preparation of *Medya Kashaya* and *Bhavana* are critical step that influence the physicochemical characteristics and therapeutic potential of the final product. Hence scientific documentation of these pharmaceutical procedures is necessary to establish reproducible manufacturing standards.<sup>[1,2]</sup>

Analytical evaluation is an integral component of the standardization of Ayurvedic medicines. Parameters such as Organoleptic characters, pH, loss on drying, ash value, solubility and other physicochemical tests provide valuable information regarding the identity, purity, stability and quality of the formation. These parameters also facilitate batch-to-batch consistency and help bridge the gap between classical Ayurvedic pharmaceuticals and modern quality control practices.

Therefore, the present study was undertaken to prepare *Sutabhasma Yoga* according to the classical method described in *Rasendra Sara Sangraha* and to evaluate its pharmaceutical process to the standardization, quality assurance and future scientific validation of this classical herbo-mineral formulation.

## MATERIALS AND METHODS

### MATERIALS

**Raw Materials used to prepare *Sutabhasma Yoga* :-** *Ashuddha Parada*, *Ashuddha Gandhaka*, *Navasagara*, *Haridra Churna*, *Kumari Swarasa*, *Nimbu Swarasa*, *Goghrita*, *Godugdha*. All the raw materials were procured and authenticated from the departement of

*Rasashastra* and *Bhaishajya Kalpana* BLDEAs AVS ayurveda Mahavidyalaya Vijayapura.

**Medhya drugs:-** *Shankapushpi*, *Brahmi*, *Vacha*, *Kushta* and *Ela*. All the herbal drugs were procured and authenticated from the departement of *Dravyaguna*, BLDEAs AVS ayurveda Mahavidyalaya Vijayapura.

**Instruments and Apparatus:** *Khalva Yantra*, *Urdhwapatana Yantra*, *Valuka Yantra*, *Kachakupi*, *Bhatti*, Gas Stove, Weighing balance, Measuring cylinder, Hot air oven, Muffle Furnace, pH Meter, Pycnometer, Silica Crucible etc.

## METHODS

### Pharmaceutical Study

The pharmaceutical preparation of *Sutabhasma Yoga* was carried out according to the classical procedures as per *Rasendra Sara Sangraha*.

### *Sodhana of Parada*<sup>[4]</sup>

*Ashuddha Parada* was purified by giving *Bhavana* of *Haridra Churna* in *Kumari Swarasa* and then subjecting to *Urdhwapatana* for 3 hours. Then it was collected, filtered through a muslin cloth, weighed and stored in an air tight glass container.

### *Sodhana of Gandhaka*<sup>[5]</sup>

*Ashuddha Gandhaka* was purified by following *Goghrita -Godugdha* process. Finely powdered *Gandhaka* was melted in *Goghrita* and poured in warm *Godugdha* (Cow milk) from the cloth. *Shudda Gandhaka* was then collected and clean again by washing with warm water for removal of residual ghee, powdered and dried and repeated this procedure for 3 times.

### Preparation of *Kajjali*<sup>[6]</sup>

*Shudda Parada* and *Shudda Gandhaka* in equal proportions were put into *Khalwa Yantra* and well triturated for a prolonged period until *Kajjali Siddhi Lakshanas* (including *Nischandratva*, *Rekhapurnatva*, *Anjanasannibha*, *Varitara*) are completely observed.

### *Sodhana of Navasagara*<sup>[7]</sup>

Powdered *Ashudda Navasagara* was dissolved in water (1:3) and physical impurities filtered off. This filtered solution was evaporated till complete dryness on *Bhatti* and stored.

### *Bhavana process*<sup>[8]</sup>

*Shudda Navasagara* was mixed with *Kajjali*, triturated with *Nimbu Swarasa* till complete dryness.

### Preparation of *Kupi*

The *Kupi* should be of dark green colour glass bottle and it is externally layered with 7 coatings of *Mritkapatita Vastra*. After complete drying of one layer, another layer was applied.

**Preparation of Rasasindura<sup>[9]</sup>**

The *Bhavita Kajjali* was filled into the prepared *Kupi* upto one third of volume, it was then placed in the *Valuka Yantra* and it was to be heated according to schedule of 4 hours each of *Mridu Agni*, *Madhyama Agni* and *Tivra Agni*. After heating process and when *Kupi* cooled on its own, it was opened carefully and the deposits at neck part of the *Kupi* which was in red color is called *Rasasindura*, this was collected and stored.

**Preparation of Medhya Kashaya<sup>[10]</sup>**

Equal quantities of *Shankhapushpi*, *Brahmi*, *Vacha*, *Kushta* and *Ela* viz., (each 10g) were coarsely powdered and boiled with 16 parts of water until it was reduced to 1/8th. Then it was filtered and stored.

**Preparation of Sutabhasma Yoga<sup>[10]</sup>**

*Rasasindura* was mixed with the Prepared *Medhya Kashaya* and triturated until get uniformly smooth paste. Then it was dried and stored in airtight glass container.

The following pictures are showing the contents and preparation of *Sutabhasma Yoga*.



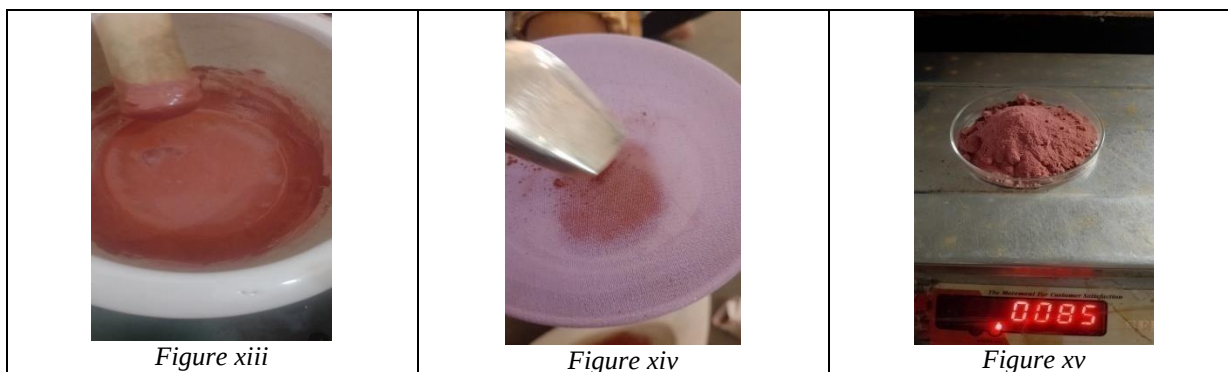


Fig.1: Brahmi, Fig.2: Shankhapushpi, Fig.3: vacha, Fig.4: Kushta, Fig.5: Ela, Fig.6: Jala, Fig.7: adding water to kwatha Churna, Fig.8: Boiling of kwatha, Fig.9: Filtering of kwatha, Fig.10: prepared kwatha, Fig.11: Rasashindura in Khalwa yantra, Fig.12: Adding Kwatha to Rasashindura, Fig.13: giving Bhavana, Fig.14: Vastragalana of Sutabhasma yoga after dring, Fig.15: final product of Sutabhasma yoga.

### ANALYTICAL STUDY

The ready formulation of *Sutabhasma Yoga* was carried out for Physicochemical evaluation by various procedures.

### Organoleptic Evaluation

Organoleptic characters (colour, taste, odour, touch, texture, appearance) of the drug were evaluated.

### Solubility<sup>[11]</sup>

The solubility of the sample was tested in 1 ml of distilled water, alcohol (Methanol, Ethanol), aromatic solvents (xylene, Chloroform), acid (HCl) and alkali (Sulphuric Acid) by shaking for 1 minute.

### Moisture Content (Loss on Drying)<sup>[12]</sup>

Weighed accurately about 5 gm of the sample was dried in hot air oven at 110°C until constant weight was achieved. The % moisture content was determined by using the formula given:

Moisture Content =  $\frac{[\text{Initial weight} - \text{Dried Weight}]}{\text{Initial weight}} \times 100$ .

### Total Ash Value<sup>[13]</sup>

Weighed accurately about 5 gm of the sample was put into silica crucible and it was incinerated in a Muffle

Furnace. The obtained residue (ash) was then weighed. The % Total Ash value was determined by using the following formula:

Total Ash Value =  $\frac{[\text{Weight of Ash}]}{[\text{Weight of Sample}]} \times 100$ .

### Specific Gravity<sup>[14]</sup>

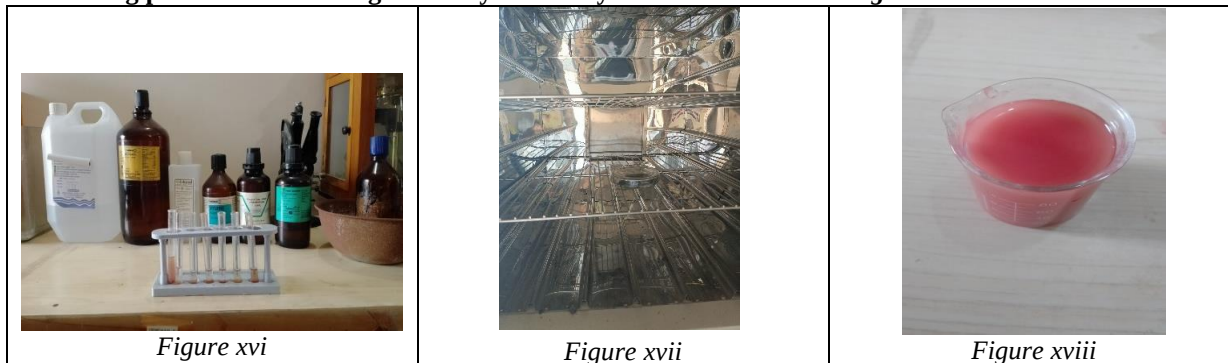
Weighed about 1% solution of drug in water using Pycnometer and compared with the weight of distilled water. % Specific gravity was then calculated.

Specific Gravity =  $\frac{(\text{Weight of Solution} / \text{Volume of solution})}{(\text{Weight of distilled water} / \text{Volume of distilled water})}$ .

### pH Determination<sup>[15]</sup>

Weighed 1gm of sample added with 100ml distilled water and shaken for a few minutes. Then it was kept for 2 hours. Then pH was measured with electronic pH meter the electrode of pH meter was fully dipped in the solution and readings were taken.

The following pictures are showing the analytical study of the *Suta Bhasma Yoga*.



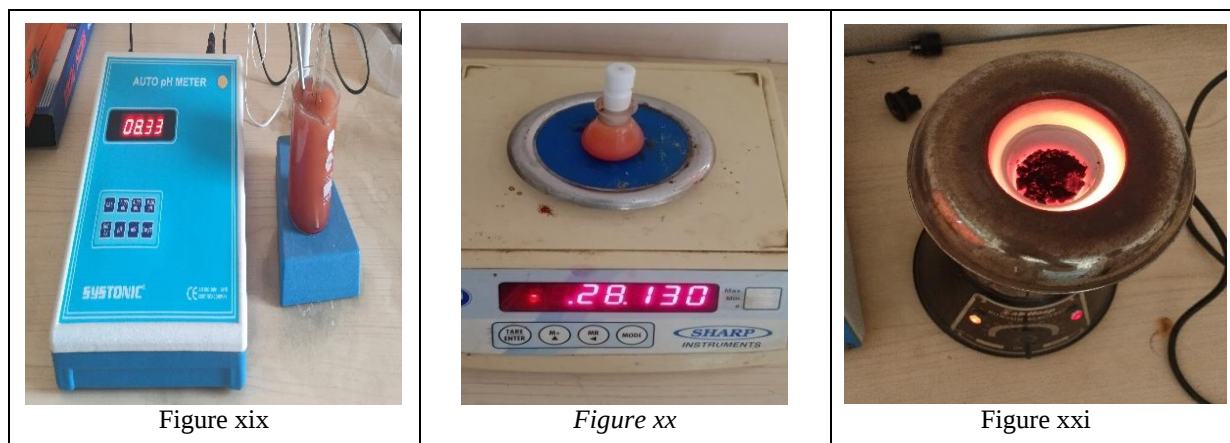


Fig.1: solubility test, Fig.2; test for moisture content, Fig.3: 1% solution, Fig.4: ph test, Fig.5: specefic gravity, Fig.6: ash value.

## RESULTS

Table no 01: Showing Initial quantity, Final quantity and Yield or Loss of the Pharmaceutical procedures.

| Pharmaceutical procedure    | Initial quantity                         | Final quantity | Yield/Loss                |
|-----------------------------|------------------------------------------|----------------|---------------------------|
| Parada Shodana              | 400 gm                                   | 350gm          | Loss: 50gm                |
| Gandhaka Shodana            | 400gm                                    | 354gm          | Loss: 46gm                |
| Kajjali preparation         | 700gm                                    | 650gm          | Loss: 50gm                |
| Navasadara Shodana          | 100gm                                    | 98gm           | Loss: 2gm                 |
| Bhavana process             | Kajjali 250gm + Shudda Navasadara 62.5gm | 312gm          | Loss: 0.5gm               |
| Rasasindura preparation     | 312gm                                    | 158gm          | Loss:114gm, Residue: 40gm |
| Medya Kashaya preparation   | 50gm Kwatha Churna + 800ml water         | 100ml          | -                         |
| Sutabhasma Yoga preparation | Rasashindura 82gm + 100ml Khwata         | 85gm           | Yield: 3gm                |

Analytical evaluation of *Sutabhasma Yoga* was performed using standard organoleptic and Physicochemical parameters. The results are summarized in the following table.

Table no 2: Showing the Organoleptic characters of the *Sutabhasma Yoga*.

| Parameter  | Result        |
|------------|---------------|
| Colour     | Reddish brown |
| Odour      | Odourless     |
| Taste      | Tasteless     |
| Touch      | Fine powder   |
| Appearance | Smooth        |

Table no 3: Showing the Physicochemical characters of the *Sutabhasma Yoga*.

| Parameter        | Result                                                                                                      |
|------------------|-------------------------------------------------------------------------------------------------------------|
| Solubility       | Insoluble in Distilled water, Methanol, Ethanol, xylene, Chloroform, HCL and H <sub>2</sub> SO <sub>4</sub> |
| Moisture content | 3.4%                                                                                                        |
| Ash value        | 58.2%                                                                                                       |
| pH               | 8.0                                                                                                         |
| Specific gravity | 1.004                                                                                                       |

## DISCUSSION

The Pharmaceutical preparation of *Sutabhasma Yoga* was carried out according to the classical procedures described in *Rasendra Sara Sangraha*. Each stage of processing including *Parada Shodana*, *Gandhaka Shodana*, *Kajjali* preparation, *Medya Kashaya*

preparation and the preparation of *Sutabhasma Yoga*. The gradual reduction in weight observed during different pharmaceutical procedures may be attributed to the removal of the physical and chemical impurities during *Shodana*, evaporation of volatile components and process related handling losses.

The preparation of *Kajjali* showed the classical characteristic of *Kajjali siddhi*, such as *Nischandratva* and *Rekhapurnatva*, indicating complete amalgamation of purified mercury and sulphur. These classical tests are considered important quality indicators for the preparation of *Rasasindura*. The comparatively lower yield of *Rasasindura* is expected because of sublimation, volatilization and deposition of mercury compounds during the *Kupipakwa* process.

The organoleptic evaluation revealed that *Sutabhasma Yoga* was a reddish-brown, odorless, tasteless, smooth, fine powder, which is consistent with the expected characteristics of formulations containing *Rasasindura* processed with *Medya Kashaya*. Uniform colour and smooth texture indicate proper *Bhavana* and homogeneous mixing of ingredients.

The physicochemical evaluation established preliminary quality control parameters for the formulation. The insolubility of *Sutabhasma Yoga* in distilled water, methanol, ethanol, xylene, chloroform, hydrochloric acid and sulphuric acid suggests the formation of a stable herbo-mineral formulation. The moisture content (3.4%) indicates adequate drying of the formulation, which is favorable for stability and minimize the possibility of microbial contamination during storage. The ash value (58.2%) was relatively high, which is expected in a herbo-mineral formulation because of the presence of mineral constituents, particularly *Rasasindura* and processed *Navasadara*. This parameter reflects the total inorganic content of the formulation and can serve as an important quality control standard. The pH value of 8.0 indicates a mildly alkaline nature, which may contribute to the stability of the formulation. The specific gravity of 1.004 suggests a uniform composition.

## CONCLUSION

*Sutabhasma Yoga* was prepared according to the classical pharmaceutical procedures described in *Rasendra Sara Sangraha*. The sequential process of *Parada Shodana*, *Gandhaka Shodana*, *Kajjali* preparation, *Medya Kashaya* preparation and *Bhavana* were performed systematically, resulting in a formation with the expected classical characteristics. The physicochemical evaluation established preliminary quality control parameters, including organoleptic characters, moisture content, ash value, pH, specific gravity and solubility profile. The formation exhibited desirable stability characteristics, with low moisture content and a stable herbomineral composition. The high ash value reflected the presence of processed mineral ingredients, while the mildly alkaline pH indicated the physicochemical stability of the formulation. These pharmaceutical and analytical findings provide scientific validation for the classical preparation of *Sutabhasma Yoga*.

**Acknowledgement:** We extend our sincere gratitude to the administration, library and Pharmacy, Analytical Lab staff of our collage.

## REFERENCES

1. Shri Gopal Krishna Bhatt. Rasendra Sara Sangraha. Edited by Ambikadatta Shastri. Varanasi: Chaukhamba Sanskrit Series Office.
2. Sharma S. Rasa Tarangini. 11th ed. New Delhi: Motilal Banarsidass Publishers.
3. Parimi Suresh, Dhannapuneni VK. Rasendra Sara Sangraha of Shri Gopal Krishna Bhatt. Varanasi: Chaukhambha Sanskrit Sansthan; 2007. Apasmara Chikitsa Adhyaya.
4. Shri Gopal Krishna Bhatt. Rasendra Sara Sangraha. Parimi Suresh, Dhannapuneni VK, editors. Varanasi: Chaukhambha Sanskrit Sansthan; 2007. Chapter 1, Shloka 28, p.11.
5. Shri Vagbhatacharya. Rasa Ratna Samucchaya. Ambikadatta Shastri, editor. 6th ed. Varanasi: Chaukhamba Amarabharati Prakashana; 1995. Adhyaya 3, Shloka 21–23, p.61.
6. Sadananda Sharma. Rasa Tarangini. Kashinath Shastri, editor. Delhi: Motilal Banarsidass; 1979. Taranga 6, Shloka 107, p.124.
7. Sadananda Sharma. Rasa Tarangini. Kashinath Shastri, editor. Delhi: Motilal Banarsidass; 1979. Taranga 4, Shloka 3–4, p.326.
8. Sadananda Sharma. Rasa Tarangini. Kashinath Shastri, editor. Delhi: Motilal Banarsidass; 1979. Taranga 6, Shloka 185, pp.138–139.
9. Sadananda Sharma. Rasa Tarangini. Kashinath Shastri, editor. Delhi: Motilal Banarsidass; 1979. Taranga 6, Shloka 185, pp.138–139.
10. Vaidya Satyarthaprakasha. Rasendra Sara Sangraha. Apasmara Chikitsa Adhyaya. p.488, Shloka 4 (*Sutabhasma*).
11. Kokate CK, et al. Practical Pharmacognosy. 1st ed. Pune: Nirali Prakashan. Chapter 5. Physicochemical Investigations (Moisture Content, Solubility, Extractions). pp.111–112, 120, 122–124.
12. The Pharmacopoeia of India. 3rd ed. Vol. II. Delhi: Manager of Publications; 1985. Moisture Content. p.A-137.
13. The Pharmacopoeia of India. 2nd ed. Delhi: Manager of Publications; 1970. Chapter 11, Determination of Ash Value. p.650.
14. The Pharmacopoeia of India. 3rd ed. Vol. II. Delhi: Manager of Publications; 1985. Specific Gravity. p.A-124.
15. The Pharmacopoeia of India. 3rd ed. Vol. II. Delhi: Manager of Publications; 1985. pH Value. p.A-122.