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PHARMACEUTICO-ANALYTICAL STUDY OF RASATALESHWAR RASA W.S.R TO RASENDRACHINTAMANI

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ABSTRACT

Skin disorders are common and affect a large number of people. Current treatment protocols are of palliative means thereby leading to its recurrence. Many formulations are used for different skin diseases. Rasataleshwar Rasa is an important formulation because it can be used for various skin problems such as Vicharchika, Kandu and Kitibha. Therefore, more research is needed to understand its preparation and effectiveness. The present study aimed to prepare and analyse Rasataleshwar Rasa as per the reference from Rasendrachintamani (Kushtharogadhikar). The formulation was prepared as per classical methods, beginning with the Shodhana of Parada, Gandhaka, Shankha, Gunja, and Bhallataka, followed by the preparation of Kajjali and Shankha Bhasma. Churna of selected herbal drugs was incorporated and triturated with Kumari Swarasa and Arka Ksheer, then subjected to Pachana in Gomutra. The final product was sun-dried, powdered, and obtained in Churna form. The study revealed distinct organoleptic features and significant variations in physicochemical parameters. Advanced analyses (XRD, XRF, and EDX) confirmed the molecular structure and elemental composition, including mercury, sulfur, and calcium carbonate. These findings highlight the need for further research to standardize Rasataleshwar Rasa and to establish its therapeutic potential in dermatological disorders.

KEYWORDS : *Rasataleshwar Rasa, Rasendrachintamani, Kitibha, Psoriasis, Kushtha.*

INTRODUCTION

Ayurveda, known as the "Science of Life," aims to promote overall health and prevent illness by addressing the root cause of diseases.[1] Rasashastra, a specialized branch, deals with herbomineral and herbometallic formulations (Rasadravyas), known as Rasakalpas or Rasaushadhis, which are effective in small doses, fast-acting, palatable, and therapeutically versatile.[2] Based on preparation, they are classified into Kharaliya, Pottali, Kupi-pakwa, and Parpati Rasayana

These Rasakalpas are preferred over herbal drugs due to properties like Yogavahi (enhanced bioavailability), Sukshmasrotogami (deep penetration), and Vyavayi (systemic distribution before digestion). Such qualities are achieved through classical processes like Shodhana, Marana, and Murchhana, that enhance efficacy while minimizing toxicity.

Kharaliya Rasayana—prepared by triturating mercury, sulphur, and other herbal, mineral or metallic ingredients in a *Khalva Yantra* (mortar and pestle) to obtain a finely powdered drug. These formulations are known for their prolonged shelf life, improved therapeutic efficacy, reduced treatment duration, and lower dosage requirement.[3]

One such classical Kharaliya formulation is *Rasataleshwar Rasa* is described in *Rasendrachintamani* (*Kushtharogadhikar*) for its efficacy in skin disorders like *Vicharchika* (eczema), *Kandu* (pruritus), and *Kitibha* (psoriasis). It is specifically formulated to balance *Vata* and *Kapha doshas* exhibiting strong *Kapha-Vatahara* properties.

In Ayurveda, Kitibha, Vicharchika, and Kandu are classified under *Kṣhudra Kushtha*. Kitibha is mainly associated with vitiation of Vata and Kapha doṣhas and is characterized by *Syavam* (blackish-brown discoloration), *Kinakharasparsha* (rough and scaly texture), and *Paruṣa* (hardness to touch).[4] Vicharchika arises predominantly from Kapha and Pitta vitiation, with secondary involvement of Vata, and presents with *Kandu* (intense itching), *Pidika* (papular eruptions), *Shyava Varna* (blackish discoloration) and Bahu*srava* (discharge/oozing).[5] Kandu is described both as an independent condition and as a symptom of various *Kushtha rogas*, primarily involving Kapha Pitta and Vata doṣhas, with features such as *Ati Kandu* (excessive itching), *Tvak Snigdhata* (unctuousness of skin), and *Rukshata* (dryness) depending on dosha predominance.[6]

The formulation Rasataleshwar Rasa was prepared as per *Rasendrachintamaṇi*, following classical pharmaceutical procedures such as Shodhana, Mardana, Bhavana, and Pachana. Comprehensive analyses of Rasataleshwar Rasa, including organoleptic,

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physicochemical, XRD, XRF, and EDX studies confirmed its elemental composition and molecular structure. These findings emphasize the importance of further research to standardize Rasataleshwar Rasa and validate its therapeutic potential in dermatological conditions, particularly those involving Vata-Kapha imbalance. Since no prior studies have been reported on Rasataleshwar Rasa and the formulation is currently not available in the market, this research holds significant potential to contribute to Ayurveda by introducing a novel therapeutic approach for skin disorders, including skin carcinoma, thereby benefiting a wider population.

AIM

1. Preparation and physico-chemical analysis of Rasataleshwar Rasa.

OBJECTIVES

1. Preparation of Rasataleshwar Rasa as mentioned in Rasendrachintamani Kushthrogadhikara.
2. Physico-chemical analysis of Rasataleshwar Rasa.

MATERIALS AND METHODS

Material

The raw materials, including *Parad, Gandhak, Shankha,* and other associated ingredients, were procured from local market, after confirming their *Grahya Lakshanas* (acceptable quality parameters).
Physico-chemical and instrumental analysis were conducted at Laboratory**.**

Methods Adopted

The Pharmaceutical study was carried out under the following steps :

1. Parada Shodhana[7]

Reference - Parad Samhita 30/85.

Procedure –

- 150 g Ashuddha Parada was taken in a clean Khalva Yantra.
- Bhavana was given with freshly prepared Rason Swarasa for 7 days (42 hrs total), using 150 g Swarasa.
- After trituration, Kshalan was performed with hot water to remove impurities.
- Purified Parada was finally collected by filtering through a clean cloth.

2. Gandhaka Shodhana (Purification of Sulphur) [8]**:**

Reference - Rasa Ratna Samucchya 3/20.

Procedure –

- Gandhaka was coarsely powdered in a clean Khalva Yantra.
- It was melted in ghee and filtered through a cloth into milk.
- The Gandhaka solidified upon contact with milk, after which it was thoroughly washed with warm water, patted dry, and re-pounded into powder.
- This entire procedure was repeated thrice for complete purification.

3. Shankha Shodhana [9]**:**

Reference - Rasa Tarangini 12/6-7.

Procedure -

- Ashuddha Shankha was weighed, wrapped in muslin cloth, and tied as a Pottali.
- The Pottali was suspended in a Dolayantra setup containing Nimbu Swarasa.
- It was heated mildly for 12 hours, undergo Swedana (sudation) with fresh Nimbu Swarasa added intermittently.
- After cooling, Shankha pieces were washed with warm water and dried under sunlight.

4. Shankha Bhasma Preparation [10]**:**

Reference - Rasa Tarangini 12/17-19.

Procedure –

- Shodhita Shankha was placed in a Sharava Samputa, sealed with Kapadmitti, and sun-dried.
- The Samputa was subjected to Gajaputa (700–900 °C for 1 hr), then allowed to cool naturally. Calcined material was collected, triturated with Ghritkumari Swarasa, and prepared into Chakrikas.
- Chakrikas were dried, sealed again in Samputa, and given a second Gajaputa under the same conditions.
- After natural cooling, the product was collected and weighed; the process was repeated for a third Gajaputa.
- Final Shankha Bhasma was obtained after three successive Gajaputas.

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5. Bhallataka shodhana [11]:
Reference - Rasa Tarangini 24/477- 478.
Procedure –

- Ripened seeds were collected; only those that sank in water were selected.
- Caps were removed, seeds cut into halves, and mixed with Ishtika Churna (brick powder).
- The mixture was tied in a Pottali and rubbed for 7 days, replacing brick powder 2–3 times.
- Toxic oil was absorbed by the brick powder; seeds were washed thoroughly with hot water.
- Finally, seeds were dried, yielding purified (Shuddha) Bhallataka safe for use.

6. Gunja Shodhana[12]:
Reference - Rasa Tarangini 24/443-444.
Procedure –

- Raw Gunja seeds were weighed, tied in a muslin Pottali, and immersed in fresh cow's milk (Dolayantra method)
- The vessel was heated mildly for 6 hours, with milk replenished as needed.
- After cooling, the Pottali was removed, and seeds were washed with warm water.
- The seed coat was peeled off and seeds shade-dried and then grounded into fine powder.

7. Preparation of Churna of other ingredients[13]:
Reference - Sharangdhar Samhita Madhyam Khand 6/1.
Procedure –

- Gunja, Bhallataka, and other ingredients (Haridra, Apamargapanchang, Punarnava mool, Vidanga, Maricha, Karanja beej) were separately powdered after Shodhana, accurately weighed, and ground in small batches.

8. Preparation of Kajjali[14]:
Reference - Rasa Ratna Samucchaya 8/5.
Procedure -

- Equal parts of Shuddha Parada and Shuddha Gandhaka were triturated in a Khalva Yantra until a homogeneous Kajjali was obtained, showing classical characteristics of a fine, black, smooth, and lusterless powder.

9. Preparation of Rasataleshwar rasa [15]:

गुंजाशंखकरंजचूर्णरजनीभल्लातकबर्हिःशिखा
कन्यासूर्यपयः पुनर्नवरजो गंधस्तथा सूतकम् ।
गोमूत्रेण श्रुतं विड्गमरीचैः क्षौद्रंच तत्तुल्यकं
हन्यादाशुविचर्चिकारूजमिदं कण्डूं तथा कैटिभम् ।। - र. चि. कुष्ठ ९/७८

Reference :- Rasendrachintamani Kushtharogadhikar
Apparatus used :- Weighing machine, Spoons, Spatula/Tongs, Measuring cylinders, Khalva yantra (mortar with pestle) Stainless steel vessels, Grinder & Sieves (of different mesh size), Glass container, Stove and Gas cylinder, cloth, plate.
Ingredients –

- Shuddha Parada – 15 gms
- Shuddha Gandhak - 15 gms
- Shuddha Gunja beej - 15 gms
- Shuddha Bhallatak - 15 gms
- Shankh Bhasma (Conch shell) - 15 gms
- Karanja beej - 15 gms
- Haridra - 15 gms
- Apamarga panchanga - 15 gms
- Punarnava mool - 15 gms
- Maricha - 15 gms
- Vidanga – 15 gms
- Ghritkumari – 330 ml
- Ark ksheer – 130 ml
- Gomutra - 8 times of overall drug i.e 2168 ml

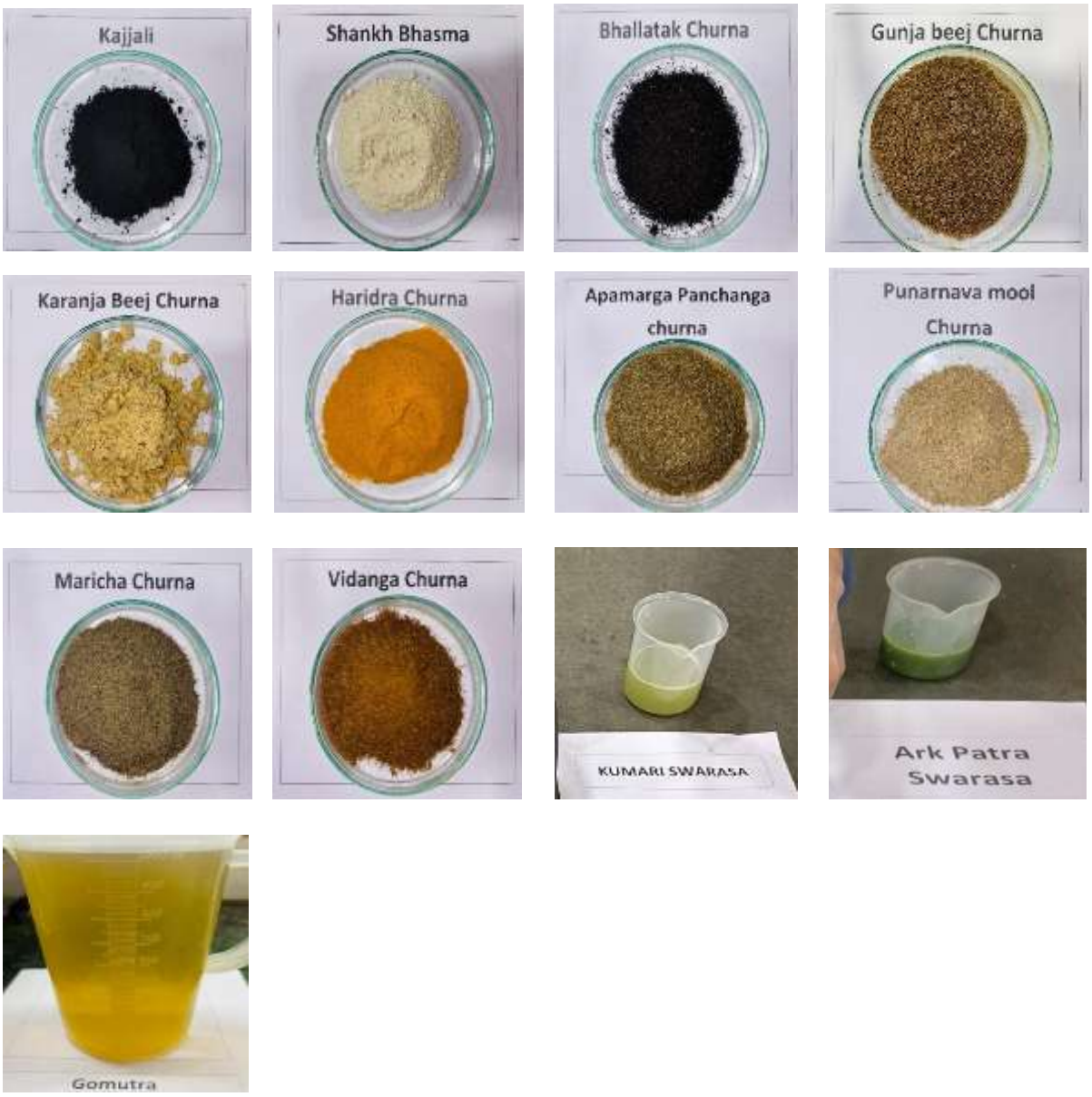
Procedure –

- Kajjali was mixed thoroughly with Gunja Beej, Karanja Beej, Haridra, Bhallataka, Apamarga Panchang, Punarnava Mool, Shankh Bhasma, Vidanga, and Maricha powders.
- Bhavana was performed using Ghritkumari Swarasa and Ark Ksheer.

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- The mixture was added to Gomutra (8 times its quantity) in a stainless steel vessel.
- The vessel was heated over Mandagni (mild flame) until Gomutra was completely absorbed.
- The preparation was spread on a tray, dried under sunlight, finely powdered, and stored in a dry container.

Fig No.1: Ingredients of Rasataleshwar Rasa



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Fig No. 2: Preparation of Rasataleshwar Rasa




All churnas mixed thoroughly in Khalva Yantra.




Ghritkumari Swarasa Bhavana given to the mixture of Churna




Ark Patra Swarasa bhavana given to mixture,2nd Bhavana completed




Blended mixture transferred to vessel, 8 times Gomutra added and kept on flame






Once the Gomutra was fully absorbed, the mixture was sun-dried, finely ground, and obtained as the final product – Rasataleshwar Rasa.

10. Physico-Chemical Analysis

- **pH:** Measures the acidity or alkalinity of the formulation.
- **Moisture Content (Loss on drying at 110°C**): Determines the amount of water or volatile matter present in the sample.

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- **Solubility in Water:** Assesses how much of the formulation dissolves in water.
- **Total Ash Value:** Represents the total inorganic residue remaining after complete combustion of the sample.
- **Acid Insoluble Ash:** Measures the amount of silica and acid-insoluble matter in the total ash.
- **Alcohol Soluble Extractive:** Indicates the quantity of active constituents soluble in alcohol.
- **Water Soluble Extractive:** Indicates the quantity of active constituents soluble in water.
- **Particle Size:** Refers to the average size of particles in the powdered formulation, often affecting bioavailability.
- **XRD (X-ray Diffraction):** Identifies the crystalline structure and phase composition of the sample.
- **XRF (X-ray Fluorescence):** Determines the elemental composition and concentration in the sample.
- **EDX (Energy Dispersive X-ray Analysis):** Provides qualitative and semi-quantitative elemental analysis of the sample surface.

OBSERVATION AND RESULTS

1. **Parada Shodhana**
   - Initial Weight: 150 g
   - Final Weight: 135.76 g
   - Parada became shiny, clear, and impurity-free after washing.
2. **Gandhaka Shodhana**
   - Initial Weight: 150 g
   - Final Weight: 144 g
   - Colour of Gandhaka changed from yellow to light greenish-yellow; solidified immediately on contact with cow's milk.
3. **Shankha Shodhana**
   - Initial Weight: 245 g
   - Final Weight: 215 g
   - Surface roughness increased; Nimbu Swarasa colour changed from greenish-yellow to brown.
4. **Shankha Bhasma**
   - Initial Shuddha Shankha Weight: 215 g
   - Final Weight (After 3rd Gajaputa): 180.37 g
   - Achieved fine powder with white colour, characteristic Aloe vera smell, and slightly alkaline pH (~10).
5. **Bhallataka Shodhana**
   - Initial Weight: 99.23 g
   - Final Weight: 93 g
   - Seeds became less sticky, non-greasy, dull black after processing.
6. **Gunja Shodhana**
   - Initial Weight: 88.85 g
   - Final Weight: 73 g
   - Red seed coat turned dull brown; outer coat loosened and removed, Godugdha colour changed from white to brown, indicating extraction of toxic elements.
7. **Preparation of Churna (Herbal Powders)**

Sr.No.	Ingredient	Initial Weight (g)	Fine Powder Obtained (g)
1.	Karanja seeds	80	70
2.	Haridra	80	70
3.	Apamarga panchanga	80	65
4.	Punarnava mool	80	60
5.	Maricha	80	75
6.	Vidanga	80	70

   - smooth, fine-textured powder with characteristic colour and odour achieved after sieving.
8. **Preparation of Kajjali**
   - Initial Weights: Shuddha Parada and Gandhaka (Equal parts)
   - Final Weight: Weight reduced due to absorption and loss during processing
   - Colour changed from yellowish-green → greyish → black.
   - Final Kajjali showed proper Rekhapurnatva, Nishchandratva, and Varitaratva tests.

9. Preparation of Rasataleshwar rasa

- Final product was a fine, smooth and Greyish black powder.

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- Initial weight of Blended mixture – 271 gms.
- Gomutra used – 2168 ml.
- Final Product weight – 238 gms.

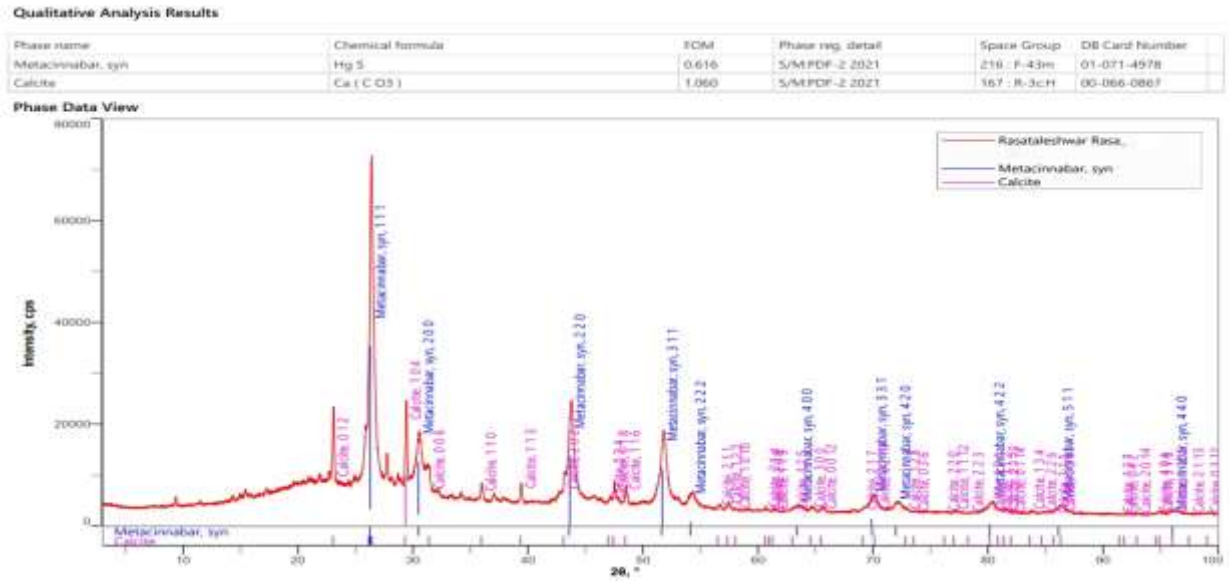
RESULTS – Yeild of final product - 238 gms

Table No. 1: Showing results of Organoleptic characteristic of Rasataleshwar rasa

Organoleptic Characteristics	Rasataleshwar Rasa
Form/Consistency	Fine Powder form
Colour	Greyish Black
Odour	Characteristic (Prominent of Gomutra)
Taste	Characteristic
Touch	Fine and Smooth

Table No. 2: Showing results of Physico-chemical analysis of Rasataleshwar rasa

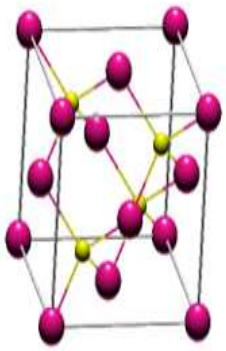
Physico-chemical Parameters	Rasataleshwar Rasa
pH	5.4
Moisture content (Loss on drying at 110 degree Celsius)	4.0%
Solubility in Water	Sparingly soluble in water
Total Ash Value	10.22%
Acid Insoluble Ash	3.0%
Alcohol Soluble Extractive	16.37%
Water Soluble Extractive	6.02%
Particle Size	Particle size - 5216.1 nm, Polydispersity Index (PDI) of 1.079 nm Z-average particle size of 1429.6 nm.
XRD (X-ray Diffraction)	Peaks of Metacinnabar (HgS) and Calcite ($CaCO_3$).
XRF (X-ray fluorescence)	48.6% of Sulphur trioxide due to presence of Gandhaka. 15.8% of Mercuric Oxide due to presence of Parada. 15.0% of Calcium oxide due to presence of Shankha Bhasma. 9.41% of Potassium Oxide, 4.67% of Silicon Dioxide, 3.37% of Phosphorus Pentoxide, 2.02% of Chlorine and other trace minerals were also seen.
EDX	Showing most prominent Energy peaks of Mercury (Hg), Sulphur (S), Phosphorus (P), Chlorine (Cl), and Silicon (Si),



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Rasataleshwar rasa

Crystal structure view: Metacinnabar (Hg S)



Crystal structure view: Calcium Carbonate (CaCO3)



DISCUSSION

Skin disorders affect 30–70% of people globally, with modern treatments being mainly palliative and having side effects, while Ayurveda offers targeted, holistic formulations for Kushtha. Rasataleśhwar Rasa, mentioned in *Rasendrachintamaṇi* under Kuṣṭharogadhikara, is a classical formulation specifically indicated for the management of skin disorders.

In the present study, the pharmaceutical process validated the efficacy of classical methods. *Shodhana* procedures effectively detoxified the raw materials, ensuring their safety for therapeutic use. Purified *Parada* and *Gandhaka* were successfully amalgamated into stable Kajjali, confirmed by classical tests like *Rekhapurṇatva*, *Nishchandratva*, and *Varitaratva*. *Shankha* underwent proper *Shodhana* and *Maraṇa*, yielding fine alkaline *Bhasma*, while toxic elements of *Bhallataka* and *Gunja* were significantly reduced after purification, ensuring safe incorporation.

The process of *Mardana* and subsequent *Bhavana* with *Ghṛitkumari Swarasa* and *Arka Ksheer* imparted uniformity and bio-enhancing properties, while *Pachana* in *Gomutra* facilitated detoxification and potentiation, evident from the observed changes in odour, colour, and consistency. The yield of 238 g from an initial 271 g mixture indicates significant absorption and transformation during *Pachana*. The final product was a smooth, fine Greyish black powder with characteristic odour, reduced weight, and stable consistency, indicating successful pharmaceutical transformation.

Analytical findings such as organoleptic and physicochemical evaluations showed acceptable pH, low moisture, moderate extractive values, and balanced solubility, suggesting good stability. Particle size analysis confirmed the nanoscale nature of the formulation, which is likely to enhance absorption and bioavailability. XRD confirmed crystalline phases of *Metacinnabar (HgS)* and *Calcite ($CaCO_3$)*, indicating the conversion of mercury and calcium into stable, non-toxic forms. XRF and EDX analyses revealed sulphur, mercury, and calcium as predominant components along with traces of potassium, silicon, phosphorus, and chlorine, reflecting a balanced mineral composition.

Overall, this study provides the first comprehensive pharmaceutico-analytical validation of *Rasataleshwar Rasa*. The findings confirm that classical Ayurvedic methods yield a stable, fine, multi-component formulation with desirable physicochemical and structural characteristics. However, further pharmacological and clinical studies are necessary to establish therapeutic efficacy and safety profiles, and to standardize this formulation for wider application in dermatological conditions.

CONCLUSION

In Ayurveda, Kushtha (skin disorders) is classified as one of the Mahagadas (major diseases) due to its high prevalence. Kitibha, Vicharchika, and Kandu, forms of Kshudra Kushtha, are primarily associated with the vitiation of Vata and Kapha doṣhas. Rasataleshwar Rasa, indicated for Kapha-Vata conditions, was prepared following the classical norms of Rasendrachintāmaṇi to ensure safety and efficacy. The processes of Shodhana, Mardana, Bhavana and Pachana play a crucial role in detoxification and proper transformation of the raw materials in therapeutically potent, bioavailable forms. The preparation in Churna form, as described in the text, yields a fine, stable and bioavailable product suitable for therapeutic use. Analytical evaluations confirmed the presence of mercury in its stable sulphide form (HgS) and uniform incorporation of herbal and mineral components. Physicochemical analysis such as Particle size, XRD, XRF, and EDX, validated stability, nanoscale particle size, and active elements in oxide and sulphide forms, ensuring therapeutic potential. *Rasataleśhwar Rasa* is not available in the current market, Hence, an effort has been made to prepare Rasataleshwar Rasa as per Rasendrachintamani and doing an analysis of the prepared medicine as a part of Research protocol to study its composition and give in for the betterment of the society.

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