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Review Article

SWAYAMAGNI RASA: A CRITICAL REVIEW OF CLASSICAL REFERENCES, PHARMACEUTICAL VARIATIONS AND STANDARDISATION REQUIREMENTS

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ABSTRACT

Swayamagni Rasa is a herbo-mineral preparation discussed in Ayurvedic pharmaceutical literature through more than one procedure. The descriptions generally involve *Kajjali*, purified iron, aloe vera juice and solar exposure, but differ in the reported proportion of iron, vessel, resting conditions and finishing procedures. This critical narrative review compares the textual descriptions available in the source material, examines their pharmaceutical implications and summarises published analytical reports relevant to the preparation. Sources were compared according to ingredients, proportions, liquid media, trituration, vessel and covering material, solar exposure, grain-heap processing and subsequent procedures. Details reported only in secondary publications or practical studies are distinguished from instructions attributed to primary texts. The available accounts indicate that the procedures are not sufficiently uniform to define a single reproducible manufacturing process. Published analytical evidence is limited, and the available scanning electron microscopy with energy-dispersive X-ray spectroscopy reports do not establish the chemical phases or bulk elemental composition of the finished preparation. The reported particle dimensions also require interpretation in relation to the distinction between primary particles and aggregates. A comparative study of the *Sarngadhara Samhita* and *Sahasrayogam* methods, using authenticated textual instructions, replicated batches, documented process parameters and validated analytical methods, is warranted.

INTRODUCTION

Herbo-mineral formulations constitute an important group of Ayurvedic preparations. Their pharmaceutical quality depends on the identity and quality of the starting materials and on the sequence, conditions and end-points of the procedures used during manufacture. Classical pharmaceutical operations include *Shodhana* (purification), *Mardana* (trituration), *Bhavana* (levigation) and *Marana* (incineration or processing to obtain *Bhasma*). When a formulation bearing the same name is described through different procedures, the resulting products cannot automatically be assumed to be pharmaceutically equivalent.

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Most conventional *Lauha* (iron) *Bhasma* procedures involve repeated heating or incineration. A smaller group of textual descriptions refers to processing without direct application of fire, including exposure to sunlight and subsequent placement in a grain heap. A review of *Marana* with special reference to *Lauha* discusses solar and fireless approaches and records the names *Swayamagni Rasa*, *Somamrita* and *Suryatapi Lauha* in this context [1]. These names should not be treated as synonyms without comparison of the actual procedures described in the respective sources.

Swayamagni Rasa is discussed in the *Sarngadhara Samhita* and in later sources, including *Rasa Chintamani, Rasamritam* and *Sahasrayogam* [2-5]. The two methods identified for the author's doctoral research are the method attributed to the *Sarngadhara Samhita* and the method attributed to *Sahasrayogam*. Both involve *Kajjali* (black sulphide of mercury prepared from *Parada* (mercury) and *Gandhaka* (sulphur)), purified *Teekshna Loha* (iron) and *Kumari/Kanya Swarasa* (aloe vera juice), followed by

solar processing. Their reported proportions and subsequent procedures differ.

The purpose of this review is to compare the available descriptions, distinguish primary-text instructions from secondary reports, assess the pharmaceutical significance of the variations and identify the requirements for a reproducible standardisation study. No experimental data are presented.

Review Methods

This article is a critical narrative review, not a systematic review. The source set comprised the classical editions and translations cited in the author's doctoral research materials, together with published review articles and pharmaceutico-analytical reports identified in the accompanying bibliography. A targeted online bibliographic search was also undertaken on 3 November 2026. Journal article records and publisher pages were checked where available. No claim is made that all databases or thesis repositories were searched exhaustively.

Sources were considered if they described the classical preparation, a practical manufacturing procedure, or the pharmaceutical/analytical evaluation of *Swayamagni Rasa* or a closely related *Lauha* preparation. Each description was compared for ingredients and proportions, liquid medium, duration of trituration, vessel and covering material, source and duration of heat, grain-heap resting, powdering/ sieving, subsequent *Bhavana* or *Prakshepa*, and reported product characteristics. Information taken from secondary publications or laboratory practicals is explicitly attributed to those reports rather than represented as a verified instruction from the primary text.

The available source material did not permit independent verification of every verse, page reference or thesis finding. Accordingly, textual details that require confirmation from the exact edition are presented as reported descriptions, not as definitive critical-edition readings.

Classical and Textual Descriptions

Sarngadhara Samhita

The method attributed to the Sarngadhara Samhita describes *Kajjali* prepared from one part of purified *Parada* and two parts of purified *Gandhaka*. *Shodhita* (purified) *Teekshna Loha* (iron) Churna (powder) is then added; the working account used for this review records six parts of iron and trituration with *Kanya Swarasa* for two *Yama*. The mass is shaped into a bolus, placed in a *Tamra* (copper) vessel and covered with *Eranda* (castor) leaf. It is exposed to sunlight for approximately half a *Yama* or until the vessel becomes hot, followed by placement in a *Dhanyarashi* (heap of grain) for 24 hours. The material is then powdered and sieved. The finishing procedure described in the working account includes seven *Bhavana* with each of eleven plant juices, followed by drying in sunlight [2].

The six-part iron proportion and the exact chapter/verse location are important textual details and must be checked against the cited edition and commentaries before submission. The secondary review by Joshi and colleagues also describes a one-day resting period for *Swayamagni Rasa* in the Sarngadhara context [1].

Rasa Chintamani

A fireless iron-processing procedure is attributed to Rasa Chintamani [4]. In a published practical study, Bhat and Vikram describe equal quantities of *Dviguna Kajjali* and purified iron powder being triturated with *Kumari Swarasa*, shaped into boluses, wrapped in *Eranda* leaf, placed in a copper vessel and exposed to sunlight before being kept in a *Dhanyarashi* [6,7]. The practical report describes six hours of solar exposure and eight days in the grain heap. It also reports powdering, sieving and addition of *Triphala*, *Trikatu*, *Jatiphala*, *Ela* and *Lavanga* as *Prakshepa*. These quantities and timings represent the authors' practical procedure; they should not be attributed to the primary text unless verified directly.

***Rasamritam* and related descriptions**

A published review discussing Rasamritam describes *Swayamagni Lohabhasma* using *Kajjali* prepared from *Parada* and *Gandhaka* in a 1:2 ratio, with fine iron powder in a quantity equal to the *Kajjali* and *Kumari* juice as the liquid medium [5]. The available secondary account does not provide sufficient detail about the vessel, duration of solar exposure or grain-heap resting. Those steps therefore cannot be reconstructed from that account alone.

Secondary literature also associates the names *Somamrita Lauha* and *Suryatapi Lauha* with fireless or solar processing of iron [1]. The exact equivalence of these preparations to *Swayamagni Rasa* remains uncertain because the complete primary-text procedures have not been compared in the available source set.

Sahasrayogam

The method attributed to *Sahasrayogam* describes *Kajjali* prepared from one-part *Parada* and two parts *Gandhaka*, followed by the addition of three parts *Shodhita* (purified) *Teekshna Loha* (iron) *Churna* (powder). The ingredients are triturated with *Kanya Swarasa*, shaped into a bolus and exposed to sunlight[3]. The source material available for this review does not specify the duration of trituration, duration of solar exposure, grain-heap resting conditions or subsequent *Bhavana*. The Malayalam edition and the English translation should be checked

together to determine whether these details are absent from the text or have been omitted from the synopsis.

Comparative Pharmaceutical Assessment

The available descriptions share a broad formulation pattern: *Kajjali* prepared from *Parada* and *Gandhaka* in a 1:2 ratio, iron, an aloe vera juice medium and solar exposure. They differ in the quantity of iron and in the later processing sequence. Table 1 summarizes the information available from the source set. "Not stated" means that the detail was not available in the source account consulted; it does not establish that the primary text is silent.

Table 1. Comparison of reported *Swayamagni Rasa* procedures. Details from practical/secondary reports are not necessarily classical instructions

Parameter	Sarngadhara account	Rasa Chintamani practical report	Rasamritam secondary account	Sahasrayogam account
Parada:*Gandhaka*	1:2	1:2 (*Dviguna Kajjali*)	1:2	1:2
Iron proportion	6 parts reported; verify primary text	Equal to *Kajjali* in practical report	Equal to *Kajjali* in secondary account	3 parts reported
Liquid medium	*Kanya Swarasa*	*Kumari Swarasa*	*Kumari* juice	*Kanya Swarasa*
Trituration	2 *Yama* reported	Until mass forms in practical report	Not stated	Not stated in available account
Vessel/cover	Copper vessel; *Eranda* leaf	Copper vessel; *Eranda* leaf wrap/cover in practical.	Not stated	Not stated in available account
Solar exposure	About half *Yama* or until vessel becomes hot	6 hours in practical report	Not stated	Sunlight; duration not stated
Dhanyarashi	24 hours reported	8 days in practical report	Not stated	Not stated in available account
Finishing	Powdering/sieving; *Bhavana* with eleven plant juices	Powdering/sieving; spice *Prakshepa* in practical	Not stated	Not stated in available account

The most consequential apparent quantitative difference is the iron proportion. The six-part quantity attributed to the Sarngadhara method differs from the three-part quantity attributed to Sahasrayogam. If the latter uses three parts of iron with *Kajjali* made from one-part *Parada* and two parts *Gandhaka*, the iron quantity is numerically equal to the combined initial mass of *Kajjali* ingredients, before any processing loss. This is a comparison of reported proportions, not a validated mass balance. Both the underlying proportions and the interpretation of "parts" require confirmation from the primary editions.

The finishing steps may also influence the final material. Repeated *Bhavana* with plant juices and the addition of spice powders introduce organic constituents and may affect moisture, extractive values, ash, pH and chromatographic profiles. A product prepared with these finishing steps should therefore not be assumed analytically equivalent to one without them.

Solar exposure and *Dhanyarashi* are process descriptions rather than sufficiently controlled manufacturing parameters. Ambient temperature, solar irradiance, vessel geometry, mass and moisture of the bolus, grain type, heap dimensions and duration may influence the thermal and moisture environment. These variables should be measured during comparative preparation rather than inferred from the term *Niragni* (without direct fire).

The term *Swayamagni* (literally, self-heating) should not be taken as proof that an exothermic reaction occurs within the mass. The available descriptions establish a fireless processing sequence, but do not provide temperature-time profiles or calorimetric evidence demonstrating self-generated heat. Instrumental monitoring is needed before proposing a mechanism.

Previous Pharmaceutico-Analytical Evidence

Two reports by Bhat and Vikram describe SEM-EDX analysis of *Swayamagni Loha Bhasma* and a comparison of *Dhanyarashi* and *Putapaka* preparations[6,7]. The comparative report states that samples were assessed by physicochemical and instrumental methods and reports elemental percentages and particle dimensions. Its abstract describes nanoscale-range dimensions. Such observations should be interpreted cautiously: SEM-derived dimensions may represent particles, agglomerates or aggregates depending on sample preparation and image analysis. SEM-EDX provides local elemental information and is not, by itself,

definitive evidence of bulk elemental concentration or chemical speciation.

A later structural study of conventional *Lauha Bhasma* used X-ray-based methods and reported an iron-oxide phase belonging to the magnetite group, with micro-particles present as agglomerates of nanoparticles[8]. This study is relevant to the analytical approach for iron *Bhasma*, but it examined a different preparation and cannot establish the phase composition of *Swayamagni Rasa*.

The available evidence therefore supports the need for further work rather than a definitive specification. No single analytical report can be used to establish universal limits for the different textual variants. Published reports should also be checked against their complete tables and methods before numerical values are extracted or compared.

Standardisation Requirements

A comparative standardisation programme should define both the manufacturing process and the quality attributes of the finished product. The following process variables are proposed for prospective documentation; they are not reported experimental findings.

Table 2: Proposed process parameters for comparative batch documentation

Manufacturing stage	Parameters to document	Purpose
Raw materials	Identity, source, quality and mass before/after *Shodhana*	Traceability and starting-material consistency
Kajjali preparation	Ingredient proportions, trituration duration, equipment and end-point observations	Reproducible preparation conditions
Trituration with *Kanya Swarasa*	Duration, juice volume, operator and ambient conditions	Reduce operator-dependent variation
Bolus formation	Mass, dimensions and physical characteristics	Standardise material exposed to solar processing
Solar exposure	Start/end time, vessel and material temperature, ambient temperature and weather	Quantify a qualitative textual instruction
Dhanyarashi	Grain type, heap dimensions, duration and temperature	Define the resting step
Powdering/finishing	Sieve specification, yield, *Bhavana* cycles and mass after each cycle	Document finishing and material loss
Final product	Batch yield, storage container and storage conditions	Enable batch comparison and future stability work

The analytical plan should include organoleptic description without tasting, basic physicochemical tests, justified chromatographic fingerprinting, particle morphology and size assessment, elemental analysis and phase characterisation. SEM and TEM may be used for morphology; DLS is appropriate only when a suitable and stable dispersion can be prepared. EDX is useful for local, semi-quantitative elemental screening, whereas quantitative bulk estimation should use validated methods such as ICP-based or atomic absorption techniques. X-ray diffraction and FTIR may provide complementary information on crystalline phases and bonding. For a mercury-containing preparation, total mercury quantification and, where technically feasible, speciation or bioaccessibility assessment are important; elemental detection alone does not establish chemical form or safety.

Limitations

This review is limited by the availability and completeness of the classical editions, translations, secondary accounts and research reports. Some procedural details have not been independently verified against the primary texts. Full texts of the historical thesis records mentioned in the initial working draft were not available for critical extraction and are therefore not used as evidence in the present version. The published analytical reports are limited in number, and the interpretation of their particle-size and elemental data requires caution. No experimental data were generated for this review.

CONCLUSION

The available textual and secondary descriptions of *Swayamagni Rasa* share a broad formulation pattern involving *Kajjali*, purified iron, Aloe vera juice and solar processing, but differ in the reported iron proportion, vessel, resting conditions and finishing procedures. The reported six-part iron proportion attributed to the Sarngadhara method and the three-part proportion attributed to Sahasrayogam are important differences that require confirmation from the exact primary editions. Existing analytical reports are preliminary and do not establish validated reference limits, definitive particle-size classification or the chemical phases present in the finished preparation. A comparative study using authenticated textual procedures, replicated batches, process

monitoring and validated analytical methods is warranted.

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