



PHARMACEUTICAL PREPARATION AND ANALYTICAL STUDY OF ANANDABHAIRAVAGHRITAM WITH SPECIAL REFERENCE TO RASARATNA SAMMUCCHAYA

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ABSTRACT

Background: Anandabhairavaghrutam, a classical formulation from Rasaratna Samuccaya, incorporates a dual-lipid base (Goghrita and Eranda Taila), Gomutra, and potent herbs like Chitraka and Shuddha Vatsanabha. It is indicated for Tvakgata Vata via Abhyanga and internal use with specific Anupana. **Aim:** To establish the Standard Operating Procedure (SOP) and physicochemical standards for Anandabhairavaghrutam. **Methods:** Vatsanabha Shodhana was performed using Gomutra. The formulation was prepared following classical Sneha Paka principles with a Kalka : Sneha : Drava ratio. Organoleptic characteristics and standard physicochemical parameters (pH, Refractive Index, Loss on Drying, Specific Gravity, Saponification Value) were evaluated per API guidelines. **Results:** The finished product yielded a dark brown viscous lipid. Analytical parameters revealed: pH 4.134, Refractive Index 1.47, Loss on Drying 0.535% w/w, Specific Gravity 0.917, and Saponification Value 290.21 mg KOH/g. **Conclusion:** The study successfully established the pharmaceutical SOP and first baseline analytical profile for Anandabhairavaghrutam. The observed parameters validate effective solute extraction, complete moisture removal (Shabda-hinatva), structural lipid stability, and skin compatibility, providing a standard reference for quality assurance.

KEYWORDS: Anandabhairavaghrutam, Sneha Paka, Vatsanabha Shodhana, Tvaggata Vata, Physicochemical Standardization.

INTRODUCTION

Ayurveda, the ancient science of life, emphasizes the use of specialized pharmaceutical processes to convert raw herbs and minerals into potent therapeutic formulations. Among these, Sneha Kalpana (medicated lipids) stands out for its unique ability to extract both water-soluble and lipid-soluble active principles. Anandabhairavaghrutam, a classical formulation described in the authoritative text *Rasaratna Samuccaya*, represents a sophisticated example of this traditional technology.

Unlike standard medicated *Ghrutas*, Anandabhairavaghrutam utilizes a dual-lipid base consisting of Eranda Taila (Castor oil) and Goghrita (Cow's Ghee). This combination, processed with the sharpness of Gomutra (Cow urine) and potent herbs like Chitraka (*Plumbago zeylanica*) and Shuddha Visha (*Aconitum ferox*), creates a formulation with unparalleled penetrating power.

its efficacy in Tvakgata Vata (Vata localized in the skin), where it is used externally through *Abhyanga* (massage) to pacify dryness, pain, and neurological deficits. Furthermore, the text provides a unique internal administration protocol, requiring the use of Lashuna (Garlic), Saindhava (Rock salt), and Taila as *Anupana* (adjuvants) to enhance systemic absorption and Vata-shaman properties.

Despite its long-standing traditional use, modern clinical application requires standardized parameters to ensure safety, purity, and consistency. This study aims to document the Standard Operating Procedure (SOP) of Anandabhairavaghrutam based on classical mandates and establish its Physico-chemical profile. By evaluating key analytical constants—including pH, Specific Gravity (SG), Refractive Index (RI), Loss on Drying (LOD), Saponification Value—this research provides a scientific benchmark for the quality control of this potent Ayurvedic formulation.

AIM AND OBJECTIVE

Aim

to establish the Standard Operating Procedure (SOP) for the preparation of Anandabhairavaghrutam

objective

1. To evaluate organoleptic characteristics including color, odor, and consistency.
2. to evaluate analytical parameters (pH, SG, RI, LOD, Saponification) to ensure quality control, stability, and therapeutic efficacy for its use in Tvakgata Vata.



MATERIALS AND METHODS

Table no 1: ingredients of *Anandabhairavaghritam*

SR NO	INGREDIENT	BOTANICAL NAME	PART USED	QUANTITY (PROPORTIONAL)	QUANTITY (EXAMPLE BATCH)
Kalka Dravya (Paste):					
1	Haritaki	<i>Terminalia chebula</i>	Fruit rind	1 Part	6.25 g
2	Bibhitaki	<i>Terminalia bellirica</i>	Fruit rind	1 Part	6.25 g
3	Amalaki	<i>Phyllanthus emblica</i>	Fruit rind	1 Part	6.25 g
4	Chitraka	<i>Plumbago zeylanica</i>	Root	3 Parts	18.75 g
5	Shuddha Vatsanabha	<i>Aconitum ferox</i>	Purified Root	3 Parts	18.75 g
Sneha Dravya (Lipids)					
6	Go-ghrita	Cow Ghee	Lipid	4 Parts	112.5 ml
7	Eranda Taila	<i>Ricinus communis</i> oil	Seed Oil	4 Parts	112.5 ml
Drava Dravya (Liquid)					
8	Gomutra	Cow Urine	Liquid	32 Parts	900 ml

1. Collection and Authentication of Raw Materials

The raw ingredients required for the formulation were procured and authenticated as per the guidelines of the Ayurvedic Pharmacopoeia of India (API).

- Herbal Drugs: *Chitraka* (*Plumbago zeylanica* - Root), *Vatsanabha* (*Aconitum ferox* - Root), and *Triphala* [comprising fruits of *Amalaki* (*Emblica officinalis*), *Bibhitaki* (*Terminalia bellirica*), and *Haritaki* (*Terminalia chebula*)] were procured from a dadar pharmacy Mumbai .
- Animal and Lipid Products: Pure *Go-ghrita* (Cow's ghee), *Eranda Taila* (Castor oil), and fresh *Gomutra* (Cow urine) were procured locally and trusted Source

2. Shodhana (Purification) of Vatsanabha

Since *Vatsanabha* is classified under Schedule E(1) poisonous drugs, it was subjected to classical *Shodhana* to mitigate its toxicity (reducing toxic aconitine into less toxic derivatives).

1.Preparation:

Select authentic, dense *Vatsanabha* tubers (*Aconitum ferox*). Clean thoroughly to remove physical dirt and debris, then break into small pieces (about the size of small pebbles).

2.Soaking in Gomutra:

Submerge the pieces completely in fresh **Gomutra** (cow's urine) inside an earthen pot or glass container. Place the container in direct sunlight during the daytime.

3.Daily Media Replacement:

Discard the old Gomutra every morning, wash the roots lightly with fresh water, and replace with fresh Gomutra. Repeat this process for **3 consecutive days**.

4.De-skinning & Drying:

On the 4th day, remove the pieces from Gomutra. The outer epidermis will have softened—scrape off the skin completely using a clean knife or cloth. Wash

thoroughly with warm water, cut into smaller slices, and dry under shade.

3. Preparation of Ananda Bhairava Ghritam

The formulation was prepared strictly adhering to the *Sneha Paka* (lipid processing) principles outlined in the *Rasaratna Samuccaya* and API guidelines.

Step 3.1: Preparation of Kalka (Herbal Paste)

Equal parts of *Shuddha Vatsanabha* powder, *Chitraka* root powder, and *Triphala* powder were mixed. A sufficient quantity of water (or *Gomutra*) was added to triturate the powders into a homogeneous, smooth paste (*Kalka*).

Step 3.2: The Sneha Paka Process

- Mixing: In a clean, wide-mouthed stainless steel vessel, the base lipids—*Go-ghrita* and *Eranda Taila* (in equal proportions)—were added and gently heated until liquefied.
- Adding the Paste and Liquid: The prepared *Kalka* was added to the warm lipids and stirred continuously to avoid charring at the bottom. Following this, the *Drava Dravya* (fresh *Gomutra*) was added. According to standard *Sneha Kalpana* rules, the ratio of *Kalka*: *Sneha*: *Drava* was maintained at 1:4:16 (unless specific equal parts were strictly modified by the text's commentary).
- Heating (*Agni Paka*): The mixture was boiled over a mild flame (*Mandagni*). Continuous stirring was maintained to facilitate the transfer of active principles and evaporate the moisture content.
- Observation of Siddhi Lakshanas: The heating was stopped when the classical signs of completion were observed:
 - Varti Lakshana*: The *Kalka* could be rolled into a wick between the fingers without sticking.
 - Shabda-hinatva*: No crackling sound was produced when a small portion of the *Kalka*



was thrown into the fire, indicating the complete evaporation of moisture.

- Appearance of the characteristic color, odor, and froth (*Phenodgama* for ghee preparations).

5. Filtration: The medicated lipid was filtered while warm through a clean, dry muslin cloth into a sterile glass container.

4. Analytical Standardization

To establish the quality control monograph, the prepared *Ananda Bhairava Ghritam* was subjected to the following analyses:

- Organoleptic Evaluation: Assessment of color, odor, taste, and consistency.
- Physicochemical Parameters: Evaluated as per API protocols, including pH, Refractive Index, Specific Gravity, Saponification Value.

RESULT

1. Pharmaceutical Results

The preparation of *Ananda Bhairava Ghritam* was completed in 2 days. The observation of *Siddhi Lakshanas* (completion signs) was recorded as follows:

Table no 2: Observations during Sneha Paka

SR NO	PARAMETER	OBSERVATION
1	Varti Lakshana	Kalka could be rolled into a non-sticky wick.
2	Shabda-hinatva	Absence of crackling sound on fire test.
3	Phenodgama	Appearance of froth (characteristic of Ghrita/Taila Paka).
4	Total Yield	Final volume 230
5	Varti Lakshana	Kalka could be rolled into a non-sticky wick.

2. Organoleptic Evaluation: The organoleptic characters of the finished *Ananda Bhairava Ghritam* were analyzed to establish its physical identity.

Table no 3: Organoleptic Characters of *Ananda Bhairava Ghritam*

SR NO	PARAMETER	RESULT
1	Color	Dark brown
2	Odor	Characteristic, Gomutra smell
3	Taste	Katu-Tikta (Pungent-Bitter)
4	Appearance	Semi-solid, viscous lipid
5	Touch	Unctuous (<i>Snigdha</i>)

3. Physicochemical Analysis: The physicochemical parameters provide the quantitative standards for the

formulation. These values ensure the purity of the lipid base and the presence of herbal extracts.

Table no 4: Physicochemical Parameters

SR. NO.	PARAMETER	RESULT (UNIT)
1.	pH	4.134
2.	Refractive Index (at 40°C)	1.47
3.	Loss on Drying (LOD)	0.535 % w/w
4.	Specific Gravity (at 25°C)	0.917 mg KOH/g
5.	Saponification Value	290.21 mg KOH/g

DISCUSSION

The pharmaceutical preparation of *Anandabhairava Ghritam* is a complex process involving the fusion of two distinct lipid media (*Ghruta* and *Taila*) with a highly potent toxic drug (*Vatsanabha*). The analytical results serve as the scientific validation of the classical *Siddhi Lakshanas*.

1. Pharmaceutical Rationale of the Formulation

The formulation follows the unique *Sneha Paka* method, utilizing a "Compound Sneha" (Ghee and Castor Oil). While *Go-ghrita* is traditionally known for its *Samskaranuvartana* (retaining the properties of added herbs while maintaining its own), *Eranda Taila* (Castor oil) is specifically added for its *Srotovishodhana* (channel-cleansing) and *Vata-hara* properties. The use of Gomutra (Cow urine) as the liquid medium (*Drava*

Dravya) acts as a powerful alkaline vehicle that assists in the extraction of the active alkaloids from the *Kalka* (herbal paste).

2. Significance of *Vatsanabha Shodhana*

The inclusion of *Vatsanabha* (*Aconitum ferox*) is the most critical aspect of this study. Raw *Vatsanabha* contains highly toxic Aconitine. During the classical *Shodhana* process in *Gomutra*, the toxic aconitine is hydrolyzed into Benzoylaconine and Aconine, which are significantly less toxic and possess therapeutic analgesic properties. The successful preparation of this *Ghritam* without any untoward physical changes indicates that the *Shodhana* was performed effectively, rendering the "poison" into a potent medicine.



Pharmacodynamics and Rationale of Ingredients (Dravya Karma)

The clinical efficacy of *Anandabhairavaghrutam* in *Tvakgata Vata* (Vata localized in the skin, presenting as numbness, roughness, dryness, and cracking) and severe systemic Vata disorders relies on a highly strategic combination of *Dravyas*. Each ingredient plays a specific, logical role based on its Ayurvedic properties (*Rasa*, *Guna*, *Virya*, *Vipaka*).

A. The Base and Liquid Media (Sneha & Drava Dravya)

Eranda Taila (Castor Oil):

- *Properties*: *Madhura* (sweet), *Katu* (pungent), *Kashaya* (astringent) *Rasa*; *Guru* (heavy), *Snigdha* (unctuous), *Sukshma* (subtle) *Guna*; *Ushna* (hot) *Virya*.
- *Action*: It is universally hailed as the foremost *Vatahara* (Vata-pacifying) drug. Its *Sukshma* property allows it to deeply penetrate the micro-channels of the *Tvak* (skin), carrying the active alkaloids directly to the site of nerve endings to relieve pain and stiffness.

Go-Ghrita (Cow's Ghee):

- *Properties*: *Madhura* *Rasa*; *Snigdha*, *Guru* *Guna*; *Sheeta* *Virya*.
- *Action*: Ghee acts as the ultimate *Yogavahi* (catalytic carrier) and exhibits *Samskaranuvartana* (it amplifies the properties of herbs cooked in it without losing its own nourishing nature). It logically balances the extreme heat and sharpness of *Vatsanabha* and *Chitraka*, preventing local skin irritation or blisters during *Abhyanga* (massage), while deeply moisturizing the dry, cracked skin characteristic of *Tvakgata Vata*.

Gomutra (Cow Urine):

- *Properties*: *Katu*, *Tikta* (bitter), *Kashaya* *Rasa*; *Laghu* (light), *Tikshna* (sharp), *Ruksha* (dry) *Guna*; *Ushna* *Virya*.
- *Action*: It acts as a powerful *Srotoshodhaka* (channel cleanser). By stripping away cellular blockages (*Kapha-Medo hara*), it paves the way for the heavy lipid molecules to absorb quickly. Furthermore, its alkaline nature aids in the chemical extraction of alkaloids during the *Sneha Paka* process.

B. The Active Herbal Paste (Kalka Dravya)

Shuddha Vatsanabha (*Aconitum ferox*):

- *Properties*: *Madhura* *Rasa*; *Ruksha*, *Tikshna*, *Vyavayi* (rapidly spreading), *Vikasi* (loosening joints/tissues) *Guna*; *Ushna* *Virya*.
- *Action*: This is the powerhouse of the formulation. Its *Vyavayi* nature means it spreads instantaneously throughout the body upon application. It acts as an extreme *Vedanasthapana* (analgesic) and *Swedajanana* (diaphoretic). In *Tvakgata Vata*, it immediately causes local vasodilation, generating warmth and restoring sensation to numb or painful areas.

Chitraka (*Plumbago zeylanica*):

- *Properties*: *Katu* *Rasa*; *Laghu*, *Ruksha*, *Tikshna* *Guna*; *Ushna* *Virya*.
- *Action*: *Chitraka* is a premier *Deepana-Pachana* (digestive and metabolic stimulant) herb. Externally, its *Ushna* and *Tikshna* qualities cut through *Avarana* (occlusion) in the peripheral blood vessels, countering the *Sheeta* (cold) and *Ruksha* (dry) qualities of aggravated Vata in the skin layers.

Triphala (*Haritaki*, *Bibhitaki*, *Amalaki*):

- *Properties*: Contains five *Rasas* (chiefly *Kashaya*); *Laghu*, *Ruksha* *Guna*; *Anushna-sheete* (neutral) *Virya*.
- *Action*: *Triphala* is *Tridoshaghna* (balances all three Doshas) and *Rasayana* (rejuvenative). Its inclusion is highly logical: it acts as a buffering agent. While *Visha* and *Chitraka* are fiercely hot and destructive to disease, *Triphala* protects the surrounding healthy tissues, promotes wound healing in cracked skin, and prevents the formulation from becoming overly Pitta-aggravating.

C. The Adjuvants for Internal Administration (Anupana)

Lashuna (Garlic) & Saindhava (Rock Salt):

- *Rationale*: The *Shloka* explicitly states that if given internally (*Abhyantara Prayoga*), it must be given with *Lashuna*, *Saindhava*, and *Taila*. Internally, severe Vata disorders often involve *Avarana* (blockages by *Kapha* or *Ama*) and diminished *Agni*.
- *Lashuna* is *Ushna*, *Snigdha*, and a profound *Vata-hara*, acting directly on bone and nerve tissue (*Asthi-Majja gata Vata*).
- *Saindhava Lavana* is *Sukshma* and lightly *Ushna*, enhancing the bioavailability of the *Ghrutam* across the gut lining. Together, they ignite the digestive fire and aggressively drive the medicated lipid deep into the systemic circulation to eradicate generalized Vata imbalances.

Clinical Significance of Administration:

The study recognizes the dual utility of this *Kalpa*. For *Tvakgata Vata*, the presence of *Vatsanabha* and *Chitraka* in a lipid base allows for rapid peripheral vasodilation and pain relief. When used internally with the prescribed Anupana (*Lashuna*, *Saindhava*, and *Taila*), the *Saindhava* (Rock salt) acts as a catalyst, further lowering the surface tension of the *Ghrutam* and ensuring deep tissue penetration to pacify systemic *Vata*.

CONCLUSION

The present study successfully fulfilled the dual objectives of establishing the Standard Manufacturing Procedure (SMP) and the analytical monograph for *Ananda Bhairava Ghrutam* as prescribed in the *Rasaratna Samuccaya*.

The pharmaceutical phase of the study confirmed that the classical method of *Sneha Paka*, using a compound lipid base of Cow Ghee and Castor Oil along with *Gomutra*, is a scientifically sound technique for extracting the therapeutic



principles of potent drugs like *Vatsanabha* and *Chitraka*. The rigorous *Shodhana* of *Vatsanabha* ensured that the formulation remained safe for therapeutic use.

- **Description:** Dark brown viscous liquid.
- **pH Value (4.134):** Indicates an acidic environment optimal for alkaloid stability and skin compatibility in *Tvaggata Vata*.
- **Specific Gravity (0.917) & Refractive Index (1.47256):** Confirm successful solute loading and uniform lipid blending.
- **Saponification Value (290.216 mg KOH/g):** Reflects lower molecular weight fatty acids, supporting rapid tissue penetration (*Sukshma-marganusari*).
- **Loss on Drying (0.535% w/w):** Validates complete moisture elimination (*Shabda-hinatva*), ensuring product stability and shelf-life.

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