



Analytical Study of Mahatiktaka Ghrita Prepared as per Classical Text

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Abstract

Mahatiktaka Ghrita is a classical Ayurvedic medicated ghee formulation widely indicated in dermatological disorders, bleeding conditions, metabolic disturbances, and pitta-dominant pathologies. Although its therapeutic indications are extensively documented in classical literature, systematic analytical validation remains limited. The present study was undertaken to establish the physicochemical profile of Mahatiktaka Ghrita through evaluation of organoleptic parameters, specific gravity, moisture content, acid value, saponification value, iodine value, ash values, and pH. The findings demonstrate conformity with pharmacopeial standards, ensuring authenticity, stability, and suitability for therapeutic administration. The generated analytical data may serve as a reference standard for quality control and future research.

Keywords: Mahatiktaka Ghrita, Analytical evaluation, Physicochemical parameters, Quality control, Ayurveda.

Introduction

Ghrita (clarified butter) occupies a unique position in Ayurvedic therapeutics as both a dietary substance and a medicinal vehicle (anupana). It is described as yogavahi, possessing the ability to enhance the efficacy and tissue penetration of administered drugs. Owing to its lipophilic nature, ghrita facilitates improved solubility and bioavailability of phytoconstituents.

Mahatiktaka Ghrita is a classical formulation prepared using tikta (bitter) herbs processed in a ghee base. It is indicated in kushtha (skin disorders), jwara (fevers), raktapitta (bleeding disorders), and various pitta-dominant conditions. The formulation is also described in the management of asrugdar and chronic metabolic disturbances where purification and pacification of aggravated doshas are required.

Despite its extensive classical usage, comprehensive analytical profiling of Mahatiktaka Ghrita is limited. Standardization through modern analytical methods is essential to ensure quality, safety, reproducibility, and broader acceptance of Ayurvedic formulations. The present study aims to establish a physicochemical profile of Mahatiktaka Ghrita prepared according to classical references.

Materials and Methods

Mahatiktaka Ghrita was prepared with reference to Sharangadhara Samhita, Madhyama Khanda (9/45–50) at the Rasa Shastra Pharmacy of YMT Ayurvedic Medical College and Hospital, P.G. Institute, Kharghar, Navi Mumbai, Maharashtra. The prepared sample was subjected to analytical evaluation at a GMP-certified pharmaceutical laboratory.

Analytical evaluation was carried out as per standard procedures described in the Ayurvedic Pharmacopoeia of India, Indian Pharmacopoeia, and AOAC guidelines.

Parameters analyzed included:

- Organoleptic evaluation – Assessment of appearance, color, odor, and taste.
- Specific gravity – Determined at room temperature using a calibrated pycnometer.
- Moisture content – Estimated by loss on drying method.
- Acid value – Determined by titration method to assess free fatty acid content.
- Saponification value – Estimated to determine the average molecular weight of fatty acids.
- Iodine value – Assessed to determine the degree of unsaturation.
- Total ash and acid-insoluble ash – Evaluated to determine inorganic content and impurities.
- pH – Recorded using a digital pH meter in aqueous emulsion.

Results

Organoleptic and physicochemical findings are summarized below:

Appearance: Semisolid ghee

Colour: Greenish yellow

Odour: Pleasant, characteristic

Taste: Pleasant

Specific Gravity: 0.9965

Moisture: 1.01%

Acid Value: 3.55

Saponification Value: 185

Iodine Value: 42

Total Ash: 0.95%

Acid Insoluble Ash: 0.32%
pH: 6.4

Discussion

The organoleptic characteristics confirm appropriate processing and incorporation of herbal constituents. The greenish-yellow coloration reflects the presence of tikta dravyas processed in the lipid medium.

Specific gravity aligns with standard values of ghee, indicating authenticity of the base material. Moisture content within permissible limits suggests adequate stability and reduced risk of microbial growth.

The acid value indicates minimal hydrolytic degradation of fats. The saponification value reflects the presence of medium-chain fatty acids supportive of digestibility and absorption. The iodine value denotes moderate unsaturation, which may contribute to biological activity.

Low total ash and acid-insoluble ash values indicate minimal contamination and proper processing. The slightly acidic pH is physiologically compatible and supportive of formulation stability.

The observed values are consistent with pharmacopoeial standards and may serve as reference data for future quality control and batch standardization.

Conclusion

The analytical evaluation establishes baseline physicochemical parameters for Mahatiktaka Ghrita prepared according to classical guidelines. The formulation meets essential quality control criteria, ensuring authenticity, stability, and safety. These findings contribute toward scientific validation and standardization of classical Ayurvedic formulations. Further studies employing advanced analytical techniques such as HPTLC profiling, GC-MS analysis, and stability studies are recommended to strengthen pharmacological documentation.

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