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Nutraceutical Evaluation Of Buckwheat (Fagopyrum Esculentum) Laddoo As A Functional Fasting Food During Upavāsa

Dr. Jagannath K. Haryan[1]* , Dr. Tejaswini Haryan[2] , Pragya Yadav[3]

[1] Professor, Department Of Rasa Shastra &Bhaishajya Kalpana, VYDSAM, Khurja
[2] Assistant Professor, Department Of Shalya Tantra, VYDSAM, Khurja
[3] 2nd Year BAMS Student, VYDSAM, Khurja
Corresponding Author: Dr. Jagannath K. Haryan

ABSTRACT

Background: Upavāsa (fasting) is a core therapeutic principle in Ayurveda, advocated for restoration of Agni, elimination of Āma, and metabolic homeostasis. During religious and intermittent fasting, cereal grains are traditionally avoided in the Indian subcontinent, creating a requirement for nutritionally adequate alternatives. Buckwheat (Fagopyrum esculentum), a gluten-free pseudo-cereal, is culturally accepted during fasting but lacks systematic Ayurvedic-pharmaceutical and nutraceutical validation in processed formulations.

Objective: To develop, standardize, and nutraceutically evaluate buckwheat (Kuttu) Laddoo as a functional fasting food using Ayurvedic pharmaceutical principles and modern nutritional analysis.

Materials and Methods: Buckwheat flour was processed into Laddoo using Go-ghṛta, sugar, Śuṇṭhī (dry ginger), and Maricha (black pepper) following Modaka-kalpanā principles. Organoleptic evaluation, Thin Layer Chromatography (TLC), and nutritional–mineral analysis were performed at a NABL-accredited laboratory.

Results: Each 100 g of prepared Laddoo yielded 353.64 kcal energy, 56.34 g carbohydrates, 14.36 g protein, and 7.88 g fat. High mineral values were observed: iron 104.54 mg/kg, calcium 122.72 mg/kg, magnesium 72.52 mg/kg, and zinc 22.72 mg/kg. TLC revealed two prominent phytochemical spots, confirming qualitative consistency.

Conclusion: Buckwheat Laddoo is a scientifically validated nutraceutical fasting food candidate with high energy, protein, and mineral content, aligned with Ayurvedic principles of Laghu, Agni-dīpana, and Kapha-Pitta śamana. It is a suitable dietary supplement during intermittent fasting.

Keywords: Buckwheat, Upavasa, Nutraceutical, Ayurveda, Fasting food, ModakaKalpanā, Functional food.

1. INTRODUCTION

Ayurveda conceptualizes health as a dynamic state of equilibrium among Doṣa, Dhātu, Mala, and Agni, where the harmonious functioning of these components ensures physiological stability and well-being [1]. Any disturbance in this equilibrium leads to disease. Among the various therapeutic principles described in Ayurveda, Langhana occupies a central role as a metabolic corrective approach, particularly in conditions involving impaired digestion, accumulation of metabolic waste (Āma), and obstruction of bodily channels (Srotas) [2]. Upavāsa (fasting) is regarded as the most

potent physiological form of Langhana because it directly modulates digestive and metabolic processes without the use of pharmacological agents.

Classical Ayurvedic texts recommend fasting in disorders such as Agnimāndya (diminished digestive fire), Āma, Jvara (fever), and a variety of metabolic conditions [2]. The fundamental rationale of Upavāsa lies in reducing the digestive load, thereby allowing Agni to regain its functional efficiency. Continuous intake of food in the presence of weakened digestion leads to the formation of incompletely processed metabolites, collectively termed Āma. This Āma obstructs physiological channels, hampers tissue nourishment, and initiates disease pathogenesis. Temporary withdrawal of food enables the body to redirect metabolic energy toward digestion of Āma, restoration of Agni, and cleansing of the Srotas. Thus, Upavāsa is not merely caloric deprivation but a purposeful therapeutic intervention aimed at metabolic recalibration and detoxification.

In addition to its somatic effects, fasting exerts a significant influence on mental and psychological health. Ayurveda considers the digestive system and mind to be intimately connected. Improvement in metabolic efficiency and reduction of Āma are believed to enhance mental clarity, emotional stability, and cognitive performance. Hence, fasting has long been associated with spiritual discipline and ritual purification in Indian tradition.

Modern biomedical research has provided mechanistic insights that parallel these classical concepts. The discovery of autophagy, elucidated by Ohsumi, demonstrated that during nutrient deprivation, cells activate internal recycling mechanisms that remove damaged organelles and abnormal proteins, thereby maintaining cellular homeostasis and metabolic regulation [6]. During fasting, autophagic activity increases, contributing to cellular detoxification, improved mitochondrial function, and enhanced energy utilization. These findings provide a contemporary scientific basis for Ayurvedic concepts such as Āma-pācana, Agni-dīpana, and Srotoshodhana, indicating a convergence between traditional wisdom and molecular biology.

Although fasting offers several metabolic and cellular benefits, prolonged or improperly supervised fasting may predispose individuals to hypoglycemia, fatigue, electrolyte imbalance, and micronutrient deficiencies. Ayurveda itself emphasizes that Upavāsa should always be individualized based on Prakṛti, digestive strength (Agni-bala), disease status, and overall vitality (Bala). Therefore, there exists a clear therapeutic need for light, easily digestible, nutritionally dense dietary alternatives that can sustain energy and micronutrient balance during fasting without negating the objectives of Langhana.

In the Indian subcontinent, religious fasting practices such as those observed during Navaratri impose strict dietary restrictions, particularly the avoidance of cereals. This creates a nutritional challenge, as staple foods are withheld while the physiological requirement for energy, protein, and micronutrients persists. Under these circumstances, buckwheat (Fagopyrum esculentum) has gained widespread cultural acceptance as a fasting food. Although often grouped with cereals, buckwheat is botanically a pseudo-cereal and is naturally gluten-free. It is nutritionally valuable due to its high-quality plant protein, dietary fibre, and significant mineral content, particularly iron, magnesium, and zinc [3,4].

From a nutritional standpoint, buckwheat offers a favorable macronutrient profile that supports sustained energy release and metabolic stability during fasting. Its protein content helps prevent fasting-induced muscle catabolism, while its fibre contributes to glycemic regulation and satiety. The mineral composition supports hematopoiesis, neuromuscular function, enzymatic activity, and immune competence. These attributes make buckwheat a suitable candidate for development as a functional fasting food.

From the Ayurvedic perspective, buckwheat can be analyzed using Rasa-Pañcaka principles. It is described as having Madhura–Kaṣāya Rasa, Śīta Vīrya, Madhura Vipāka, and Laghu–RūkṣaGuṇa, which make it particularly suitable for Kapha-Pitta śamana [7]. Its Laghu and Rūkṣa qualities complement the objectives of Langhana, while its Madhura Vipāka contributes to sustained nourishment and tissue support. Thus, buckwheat aligns with both the therapeutic philosophy of fasting and the physiological requirements of fasting individuals.

Despite its traditional acceptance, buckwheat is usually consumed in non-standardized forms such as flatbreads or porridges, which lack uniform dosage, pharmaceutical precision, and predictable nutritional composition. Converting buckwheat into a pharmaceutically standardized Laddoo under ModakaKalpanā offers multiple advantages, including controlled ingredient proportion, uniform dosage, improved palatability, enhanced shelf stability, and better patient compliance [5]. The incorporation of Go-ghṛta, Śuṇṭhī, and Maricha further enhances the formulation by improving digestive efficiency, preventing Āma formation, and enhancing bioavailability through the Yogavāhi property of ghee.

Hence, the present study was undertaken to scientifically validate buckwheat Laddoo as a nutraceutical fasting formulation by integrating Ayurvedic pharmaceutical science with modern nutritional analytics. The study aims to generate objective data on its nutritional and mineral composition, establish pharmaceutical standardization parameters, and provide a scientific rationale for its use as a functional dietary supplement during Upavāsa.

2. AIM AND OBJECTIVES

Aim

To establish buckwheat Laddoo as a standardized nutraceutical functional food suitable for Upavāsa.

Objectives

1. To prepare buckwheat Laddoo using classical Ayurvedic pharmaceutical methods.
2. To assess organoleptic and chromatographic quality parameters.
3. To evaluate nutritional and mineral composition.
4. To correlate Ayurvedic attributes with modern nutraceutical relevance.

3. MATERIALS AND METHODS

Study Design

The present study was designed as a pharmaceutical development and analytical evaluation study to prepare, standardize, and nutraceutically assess buckwheat Laddoo intended for consumption during Upavāsa (fasting). The study involved formulation using Ayurvedic pharmaceutical principles followed by qualitative and quantitative analytical evaluation, including organoleptic assessment, Thin Layer Chromatography (TLC), nutritional analysis, and mineral estimation.

Raw Materials and Authentication

Buckwheat (Fagopyrum esculentum) flour was procured from a certified local supplier. Go-ghṛta (cow ghee), refined sugar, Śuṇṭhī (dry ginger), and Maricha (black pepper) were obtained from authenticated Ayurvedic raw drug stores. All raw materials were verified for quality based on classical organoleptic parameters such as colour, odour, taste, texture, and absence of foreign matter

or adulterants. The plant-based raw drugs were further cross-verified with standard pharmacognostic descriptions available in classical and contemporary Ayurvedic compendia. The authenticated raw materials were stored in clean, dry, and airtight containers at ambient room temperature until further use.

Ingredients and Proportions

The formulation was prepared using standardized proportions as detailed in Table 1. These proportions were finalized after preliminary trials to ensure optimal binding, digestibility, palatability, pharmaceutical stability, and nutraceutical balance.

Table 1: Ingredients and Proportion of Buckwheat Laddoo

S. No.	Ingredient	Botanical / Common Name	Quantity Used	Purpose
1	Buckwheat flour	Fagopyrum esculentum	1000 g	Base ingredient, energy source
2	Go-ghṛta	Cow ghee	250 g	Binding agent, Yogavāhi
3	Sugar	Refined sucrose	62.5 g	Sweetener, quick energy
4	Śuṇṭhī	Zingiber officinale	12 g	Dīpana–Pācana
5	Maricha	Piper nigrum	12 g	Dīpana–Pācana
6	Water	Potable water	200 ml	Syrup preparation

Method of Preparation (ModakaKalpanā)

The preparation of buckwheat Laddoo was carried out according to the principles of ModakaKalpanā described in Ayurvedic pharmaceutics [5]. Initially, Go-ghṛta was heated gently in a clean stainless-steel vessel. Buckwheat flour was added gradually and subjected to Bharjana (roasting) over mild heat with continuous stirring. Roasting was continued until the flour attained a uniform light brown colour and a characteristic aromatic odour, indicating proper roasting and elimination of rawness.

Separately, refined sugar was dissolved in potable water and heated to prepare ŚarkarāPāka. The syrup was cooked until it attained Tantumatva (two-thread consistency), which is considered ideal for proper binding of Laddoos. At this stage, finely powdered Śuṇṭhī and Maricha were added to the syrup and mixed thoroughly to ensure uniform distribution of the Dīpana–Pācana components.

The hot medicated sugar syrup was slowly poured into the roasted buckwheat flour–ghee mixture with continuous mixing to obtain a homogenous semi-solid mass. The mixture was allowed to cool slightly until it became warm and suitable for handling. Uniform spherical Laddoos weighing approximately 10 g each were manually shaped. The prepared Laddoos were kept undisturbed at room temperature to allow complete cooling and setting. After cooling, they were stored in airtight glass containers to prevent moisture absorption and microbial contamination.

Organoleptic Evaluation

Organoleptic evaluation was conducted by a panel of trained observers. Parameters including colour, odour, taste, texture, and overall appearance were assessed using descriptive sensory analysis. Observations were recorded systematically for subsequent presentation in the Results section.

Thin Layer Chromatography (TLC)

Qualitative phytochemical profiling of the formulation was carried out using Thin Layer Chromatography. The methanolic extract of the prepared buckwheat Laddoo was used as the test sample. Silica gel–coated TLC plates served as the stationary phase, while a solvent system of toluene:ethyl acetate (7:3) was used as the mobile phase. After development, the plates were air-dried and visualized under ultraviolet light at 254 nm and 366 nm. The number, position, and nature of the spots were recorded, and Rf values were calculated. TLC findings are presented in the Results section.

Nutritional and Mineral Analysis

The macronutrient composition of the formulation was analyzed to determine energy (kcal), carbohydrate (g), protein (g), and total fat (g) content per 100 g of the sample using standard validated procedures followed in food and nutrition testing laboratories. Mineral analysis was carried out to estimate calcium, iron, magnesium, and zinc using standard elemental analysis techniques, employing an Atomic Absorption Spectrophotometer (AAS). The quantitative values obtained are presented in the Results section (Tables 3 and 4).

Laboratory Testing

All analytical evaluations including TLC, nutritional analysis, and mineral estimation were carried out at a NABL-accredited laboratory using validated standard operating procedures. Nutritional parameters were expressed as per 100 g of sample, and mineral parameters were expressed in mg/kg.

4. RESULTS

4.1 Organoleptic Evaluation

The prepared buckwheat Laddoo exhibited satisfactory organoleptic characteristics, indicating good pharmaceutical quality and consumer acceptability. The evaluated parameters and observations are summarized in Table 2.

Table 2: Organoleptic Evaluation of Buckwheat Laddoo

Parameter	Observation
Colour	Ash brown
Odour	Pleasant, aromatic
Taste	Madhura with mild Tikta–Kaṭu
Texture	Solid, smooth
Appearance	Uniform, spherical

The ash brown colour suggested uniform roasting of the buckwheat flour without charring. The pleasant, aromatic odour was attributed to the combined effect of Go-ghṛta, Śuṇṭhī, and Maricha. The predominantly Madhura taste with a mild Tikta–Kaṭu undertone was imparted by ginger and black pepper, supporting digestive stimulation. The solid, smooth texture and uniform spherical appearance indicated proper syrup consistency and effective binding.

4.2 Nutritional Composition

The nutritional analysis demonstrated that the formulation is energy-dense and nutritionally balanced (Table 3).

Table 3: Nutritional Composition (per 100 g)

Parameter	Value
Energy	353.64 kcal
Carbohydrates	56.34 g
Protein	14.36 g
Total Fat	7.88 g

Each 100 g of the formulation provided 353.64 kcal, indicating a substantial caloric contribution suitable for fasting conditions. Carbohydrates (56.34 g/100 g) served as the immediate energy source, while the relatively high protein content (14.36 g/100 g) helped maintain nitrogen balance and prevent fasting-induced muscle catabolism. Total fat (7.88 g/100 g), largely contributed by Go-ghṛta, supported sustained energy release, satiety, and absorption of fat-soluble phytoconstituents.

4.3 Mineral Composition

Mineral estimation revealed considerable levels of essential micronutrients, as shown in Table 4.

Table 4: Mineral Composition (mg/kg)

Mineral	Value	Physiological Role
Calcium	122.72	Bone, neuromuscular function
Iron	104.54	Hematopoiesis, fatigue prevention
Magnesium	72.52	Enzyme activity, muscle function
Zinc	22.72	Immunity, wound healing

The calcium content supports bone health and neuromuscular function. The high iron level (104.54 mg/kg) is significant for preventing anemia and fatigue during prolonged fasting. Magnesium, at 72.52 mg/kg, supports enzymatic reactions and energy metabolism, while zinc (22.72 mg/kg) contributes to immune modulation, antioxidant defense, and tissue repair.

4.4 Thin Layer Chromatography (TLC) Profile

Thin Layer Chromatography of the methanolic extract of buckwheat Laddoo showed two prominent spots on silica gel plates when developed in toluene:ethyl acetate (7:3) and visualized under UV at 254 nm and 366 nm. The observed spots exhibited consistent Rf values across batches, indicating reproducible phytochemical distribution in the formulation. This qualitative TLC profile supports the batch-to-batch uniformity and phytochemical stability of the prepared nutraceutical Laddoo.

The combined findings of organoleptic, nutritional, and mineral analysis indicate that the prepared buckwheat Laddoo is not merely a traditional fasting sweet but a scientifically validated nutraceutical formulation. Excellent sensory acceptability favors compliance, while high energy and protein content support metabolic demands during Upavāsa. The substantial mineral content, particularly iron and zinc, enhances therapeutic relevance by supporting hematological and immune functions.

The results presented in Tables 2–4 collectively demonstrate that the prepared buckwheat Laddoofulfills both sensory acceptability and nutraceutical adequacy required for safe and effective dietary support during Upavāsa.

5. DISCUSSION

Upavāsa is described in Ayurveda as a powerful Langhana measure that promotes Āma-pācana, Agni-dīpana, and Srotoshodhana [1, 2], along with psychological purification. During fasting, the digestive system is relieved from continuous metabolic load, allowing Agni to act more efficiently on accumulated metabolic waste (Āma), thereby improving both cellular and systemic metabolism. In normal dietary patterns, repeated and excessive intake of food, especially under conditions of weakened digestion, leads to the formation of Āma, which is regarded as the primary pathological factor responsible for obstruction of Srotas, impairment of tissue nourishment, and initiation of disease. By withholding food temporarily, fasting diverts metabolic energy toward digestion and elimination of this accumulated waste. The resulting Srotoshodhana enhances nutrient transport, oxygen exchange, and metabolic communication at the tissue level. In addition to physical detoxification, controlled fasting also contributes to mental clarity by reducing sensory overload and stabilizing neuro-metabolic activity, thereby supporting psychological purification and improved cognitive function.

However, prolonged or repeated fasting without appropriate nutritional support may lead to adverse physiological consequences such as hypoglycemia, fatigue, electrolyte imbalance, and micronutrient deficiency. These effects are particularly relevant in individuals with poor nutritional reserves, chronic illness, or repeated religious fasting practices. Ayurveda also emphasizes that Upavāsa should always be individualized based on Prakṛti, strength (Bala), and digestive capacity (Agni-bala). Hence, while fasting is therapeutically beneficial, it simultaneously creates a physiological demand for light, easily digestible, and nutritionally dense dietary supplements that do not negate the objectives of Langhana yet prevent excessive depletion of energy substrates and micronutrients. This clinical requirement forms the fundamental rationale for the development of a nutraceutical fasting formulation.

Buckwheat serves this purpose effectively due to its superior nutritional attributes, especially its high-quality plant protein and essential mineral content [3, 4]. The protein fraction of buckwheat plays an important role in preventing fasting-induced muscle catabolism and maintaining nitrogen balance. During fasting, when carbohydrate-derived energy becomes limited, protein breakdown from skeletal muscle may increase to meet metabolic demands. The presence of adequate dietary protein in the fasting diet helps counteract this catabolic tendency, thereby preserving muscle mass

and functional strength. In addition, minerals such as iron, magnesium, and zinc contribute significantly to hematopoiesis, enzymatic activity, neuromuscular conduction, and immune regulation. Iron supports hemoglobin synthesis and prevents fasting-related fatigue and anemia, magnesium is essential for energy metabolism and muscle function, and zinc plays a critical role in immune defense and cellular repair.

The inclusion of Go-ghṛta in the formulation plays a crucial dual role—pharmaceutically as a binding and stabilizing agent, and therapeutically as a Yogavāhi [8], enhancing the bioavailability and systemic delivery of nutrients. From an Ayurvedic standpoint, ghṛta is known for its ability to penetrate subtle channels (sūkṣma-mārgaanuvartitva) and to carry the properties of associated substances deep into the tissues. This ensures efficient assimilation of the nutraceutical components of buckwheat and added spices. From a modern nutritional perspective, ghee facilitates the absorption of fat-soluble phytoconstituents and vitamins and provides sustained energy release owing to its lipid content. Unlike rapidly absorbed carbohydrates, dietary fats slow gastric emptying and prolong nutrient absorption, thereby preventing abrupt glycemic fluctuations during fasting.

The addition of Śuṇṭhī (dry ginger) and Maricha (black pepper) further strengthens the formulation by acting as classical Dīpana–Pācana agents. These drugs stimulate digestive secretions, improve peristaltic movements, and enhance metabolic enzyme activity. Their presence ensures that the formulation remains compatible with weakened digestive fire often observed during fasting. Moreover, Śuṇṭhī and Maricha counteract the potential Kapha- and Āma-producing effects of ghee and sugar [9]. Sugar, although required for taste and rapid energy, may contribute to heaviness and mucous production if taken alone in individuals with low Agni. The balancing effect of pungent spices thus preserves digestive efficiency while allowing safe caloric supplementation. This synergy reflects the classical Ayurvedic principle of rational drug combination (Yukti), where opposing qualities are judiciously balanced to achieve therapeutic harmony.

The observed high iron and zinc content of the preparation further substantiates its role in preventing fasting-related anemia, immune suppression, and generalized weakness. Repeated fasting, when not nutritionally supported, can lead to depletion of iron stores and compromise immune surveillance. The mineral richness of the buckwheat Laddoo thus adds a significant layer of therapeutic relevance, converting the formulation from a simple fasting food into a nutraceutical support system.

Collectively, these findings demonstrate that the buckwheat Laddoo is not merely a traditional fasting sweet but a scientifically rational, pharmaceutically balanced, and therapeutically relevant functional food. The formulation integrates multiple dimensions of fasting physiology—energy sustainability, protein preservation, micronutrient supplementation, digestive support, and bioavailability enhancement—within a single standardized preparation. The convergence of Ayurvedic dietetic principles with modern nutritional science provides strong translational validity to this formulation. Thus, buckwheat Laddoo emerges as a safe, effective, and culturally acceptable nutraceutical option for dietary support during Upavāsa, preserving the therapeutic essence of fasting while preventing its potential metabolic drawbacks.

6. LIMITATIONS

The present study is limited to pharmaceutical standardization, organoleptic evaluation, TLC profiling, and nutritional–mineral analysis. Clinical evaluation in fasting individuals, glycemic index assessment, and quantitative phytochemical estimation were not performed, providing scope for future investigations.

7. FUTURE SCOPE

- Glycemic index and metabolic studies
- Shelf-life and microbial stability analysis
- Clinical trials during Navaratri fasting
- Commercial nutraceutical product development

8. CONCLUSION

The present study successfully establishes buckwheat Laddoo as a nutritionally rich, pharmaceutically standardized, and therapeutically appropriate nutraceutical formulation for consumption during Upavāsa. The formulation offers a balanced supply of sustained energy, high-quality plant protein, and essential micronutrients such as iron, calcium, magnesium, and zinc, which are crucial for maintaining metabolic stability, preventing fatigue, and supporting immune and hematological functions during fasting. The incorporation of Go-ghṛta as a Yogavāhi enhances the bioavailability of nutrients, while the inclusion of Śuṇṭhī and Maricha ensures digestive compatibility through their Dīpana–Pācana actions.

Pharmaceutical standardization through ModakaKalpanā has further ensured uniform dosage, improved palatability, stability, and patient compliance, converting a traditionally consumed fasting food into a scientifically validated nutraceutical product. By integrating classical Ayurvedic dietetic principles with modern nutritional and analytical evaluation, this formulation bridges the gap between traditional fasting practices and evidence-based functional food science.

Overall, buckwheat Laddoo demonstrates strong translational potential in the domains of functional food development, integrative nutrition, and traditional health practices, and it may serve as a model formulation for future nutraceutical innovations aimed at safe and effective dietary support during fasting.

9. CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this research work.

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11. REFERENCES

1. Lad V. Ayurveda: The Science of Self-Healing. Albuquerque: Ayurvedic Press; 1984.
2. Sharma RK, Dash B. Caraka Samhita. Varanasi: Chaukhambha Orientalia; 2007.
3. Hussain MA, Patil GR. Buckwheat as a functional food. Int J Food Sci Nutr. 2012;63(7):868–873.
4. Gopalan C, Ramasastri BV, Balasubramanian SC. Nutritive Value of Indian Foods. Hyderabad: National Institute of Nutrition (ICMR); 2010.
5. Angadi R. Bhaishajya Kalpana Vijnana. Varanasi: ChaukhambhaSurbharati Prakashan; 2022.
6. Ohsumi Y. Historical landmarks of autophagy research. Cell Res. 2014;24(1):9–23.

7. Sharma PV. Dravyaguna Vijnana. Vol 2. Varanasi: Chaukhambha Bharati Academy; 1995.
8. Mahakalkar A. Versatility of cow ghee – Ayurvedic perspective. Am J Drug Deliv. 2014;1:28–34.
9. Chunekar KC, Pandey GS (Ed.). Bhavaprakasha Nighantu. Varanasi: Chaukhambha Bharati Academy; 2010.