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Research Article

NUTRITIONAL AND THERAPEUTIC ANALYSIS OF *SETHURA LADDU* FOR POSTPARTUM WOMEN

Deepshikha Jaiswal[1*], Anuradha Roy[2]

*[1]PhD Scholar, [2]Associate Professor, Department of Prasuti Tantra, Faculty of Ayurveda, Institute of Medical Sciences; Banaras Hindu University, Varanasi, U.P., India.

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ABSTRACT

Sethura laddu, a traditional Indian sweet consumed by postpartum women, particularly in Uttar Pradesh and Bihar. A well- balanced nutrition is essential for a child's development which is starting from conception and extending through lactation, where maternal nourishment plays a significant role. This analysis aims to verify its role in supporting newly delivered mothers through nutritional and therapeutic perspectives. *Sethura laddu* is traditionally prepared recipe for recovery of postpartum, using a specific mixture of ingredients, including ginger powder, desiccated coconut, *Tikhur* powder, deshi ghee, almonds, gond, cashews, raisins, sugar, moong dal powder, makhana, turmeric powder, chironji, and poppy seeds. A detailed nutritional analysis was performed to assess the nutritional composition which is beneficial for postpartum women. The study also included a review of the nutritional benefits. Nutritionally, the laddu provides a balanced combination of proteins, fats, and carbohydrates, contributing to its role in enhancing milk production, reducing back pain, and providing sustained energy. The iron content was quantified as 3.30mg/100g through analysis. Key ingredients such as dry ginger, moong dal powder, *Tikhur* powder, almonds, and deshi ghee are known for their beneficial effects on digestion, cardiovascular health, lactation, and overall postpartum recovery. *Sethura laddu* is a nutrient-dense recipe with significant benefits for postpartum women. Its traditional formulation, supported by both historical usage and nutritional analysis, aids in lactation, energy provision, and ease postpartum discomfort. This study highlights the laddu's value as a dietary supplement for new mothers, combining traditional wisdom with nutritional science to support postpartum health and recovery.

INTRODUCTION

Laddu plays a crucial role in supporting both maternal health and child development, emphasizing the importance of nourishing both mother and child for a healthy future. *Sethura laddu*/dry ginger laddu (SL) is a traditional sweet treat commonly consumed by new mothers in Uttar Pradesh and Bihar. Packed with essential nutrients, it's made from easily accessible ingredients like dry ginger powder, jaggery or sugar, ghee, and various dry fruits, tailored to individual preferences and budgets.

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These laddus are not just enhance flavour as well as they offer numerous health benefits, supporting mothers during the nursing period and helping to combat winter ailments. Proper nutrition is vital for a child's development, especially during pregnancy and lactation, as a baby relies entirely on the mother's health and milk quality. *Sethura Laddu* enhances the quality of breast milk while promoting the mother's well-being.[1]

In Ayurveda, Gond is a key ingredient in these laddus, is known for boosting stamina and overall health, helping mothers fend off illnesses and addressing low Vitamin D levels. Additionally, the laddus lubricate joints, reduce back pain, and provide sustained energy, curbing hunger and reducing the temptation to indulge in unhealthy snacks. [2]

These laddus are rich in fats and fibre, help strengthen the immune system, which can be

compromised due to various environmental and lifestyle factors. They are excellent sources of calcium and protein, essential for maintaining strong bones and alleviating back pain.[3]

AIMS

This analysis aims to verify its *(Sethura Laddu)* role in supporting newly delivered mothers through nutritional and therapeutic perspectives.

MATERIALS AND METHODS

1. Ingredients

The primary ingredients for *Sethura laddu* include:

Preparation of *Sethura laddu* (for 4kg laddu)

Ingredients

- Ginger powder– 60gm
- Desiccated coconut– 250 gm
- *Tikhur* powder (east Indian arrow root)– 250gm
- Deshi ghee- 1 kg
- Almonds– 250 gm
- Edible gum (Gond)- 250 gm
- Chashew – 250 gm
- Raisin – 250 gm
- Sugar – 1 kg
- Moong dal powder- 500 gm
- Makhana – 250 gm
- Turmeric powder- 60 gm
- Cuddapah almond (Chironji)-60 gm
- Poppy seeds-50 gm

Fig 1

Fig 2

Preparation Method

Ingredient Preparation

- All the ingredients are pre-measured.
- Then ingredients fried into ghee, and grind them in powdered form.

Cooking Process

- Heat deshi ghee in a large pan.
- Fry desiccated coconut, tikhur powder, and crushed makhana, almonds, cashews, raisins, gond, poppy seeds and chironji into ghee and set aside.
- Add dry ginger powder, turmeric powder, and moong dal powder to the ghee, stirring continuously.
- Once the mixture reaches a thick, dough-like consistency, remove from heat.
- Grind all the fried dry fruits and mix them into the consistency.
- Gradually add powdered sugar.

Shaping and Cooling

- Shape the mixture into uniform laddus weight 50-60 grams while still warm.
- Allow the laddus to cool completely before storing.

After preparing the recipe, we give our sample for nutritional analysis at FICCI research & analysis centre, Dwarka, New Delhi and Department of Dairy Science & Food Technology, Institute of Agriculture Science, BHU, Varanasi.

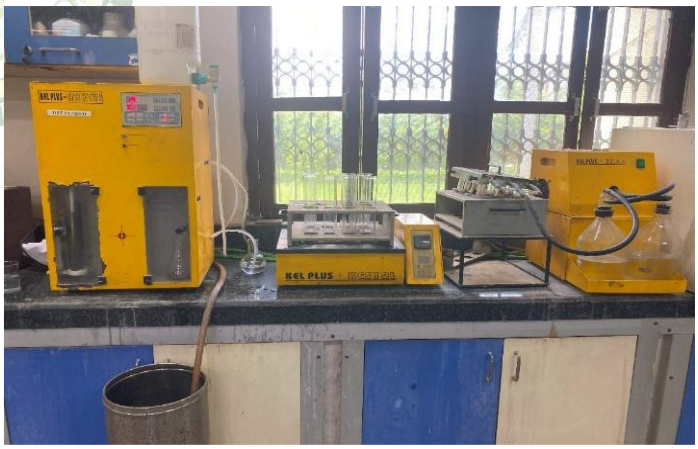

Fig.3- Protein Analysis through Kjeldahl method

RESULTS AND DISCUSSION

Nutritional analysis

Nutritional analysis of food is the process of determining what's inside food, like calories, protein, vitamins, minerals, and other nutrients. It helps us understand the food's quality, how it's processed, and if it's safe to eat. In our recipe, nutrients which are required for post- partum women were analysed.

Nutrient	Amount (per 100 g)
Iron	3.30 mg
Calcium	380.09 mg
Vitamin C	14.68 mg
Vitamin B1 (Thiamine)	2.54 mg/kg
Vitamin B2 (Riboflavin)	2.67 mg/kg
Vitamin B3 (Niacin)	4.48 mg/kg
Vitamin B6	0.87 mg/kg
Dietary Fibre	28.04 g
Fats	27.26 g
Carbohydrates	26.21
Protein	13.90 g
Total Calories	461.86 kcal

Comparison with RDA

$$\% \text{ RDA Fulfilled} = \frac{\text{Amount in Food (per 100g)} \times 100}{\text{RDA Requirement}}$$

Nutrient	SL (per 100 g)	RDA (Moderate worker) (Lactating Women) (0–6 months)	% RDA Fulfilled
Iron (mg)	3.3	21	15.7%
Calcium (mg)	380.09	1200	31.7%
Vitamin C (mg)	14.68	80	18.3%
Vit B1 (mg)	2.54	1.4	181.4%
Vit B2 (mg)	2.67	1.6	166.9%
Vit B3 (mg)	4.48	17	26.4%
Vit B6 (mg)	0.87	2.0	43.5%
Protein (g)	13.9	74	18.8%
Carbohydrates[4] (g)	26.21	160	16.4%
Fat (g)	27.26	30	90.9%
Dietary Fibre[5] (g)	28.04	29	96.7%
Calories (kcal)	461.86	2830	16.3%

Nutritional Benefits

Sethura laddu is a nutrient-dense recipe, providing a balanced combination of proteins, fats, and carbohydrates. The ingredients contribute to its high nutritional value:

- **Dry Ginger (*Zingiber officinale*)**

  Ginger is a widely utilized medicinal herb in traditional medicine such as Ayurveda, Chinese medicine, and Unani. It is considered safe for human use and exhibits multiple pharmacological properties like improving the function of gastrointestinal tract, its formulations have been used as traditional aids for gastric disturbances.[6]

- **Moong dal powder (*Vigna radiata*)**

  Mung beans are very nutritious, helps to prevent chronic disease, manage cholesterol and blood pressure too, it also improves digestion, control blood sugar, aid to weight loss, support pregnancy, and are highly versatile in cooking. These are one of the best plant-based sources of protein. They are rich in essential amino acids. Also beneficial for lactating mothers.[7]

- **Tikhur/east Indian arrow root (*Curcuma angustifolia*)**

  East Indian Arrowroot (Tikhur) is very nutritious, soothing, and used for ulcers, diarrhoea, dysentery, urinary issues, typhoid, and fevers because of its medicinal properties. It also use in Ayurveda, to boosts strength, immunity, and digestion, as well as helps in asthma, jaundice, anaemia, kidney stones, and skin problems**.** It is also known as healing tonic.[8]
- **Gum Arabic (exudate of *Acacia Senegal*)**

  Gum Arabic or Gond mainly contains arabin (a mix of calcium, magnesium, and potassium salts of arabic acid) along with many enzymes. It dissolves in water and is used in syrups and decoctions for medicinal and therapeutic purposes. In medicine, gum arabic is considered helpful in kidney problems and has several properties, it works as a pain reliever, astringent, emollient, liver tonic, fever reducer, and anti-asthmatic. In folk medicine, gond has been used to treat diarrhoea, dysentery, diabetes, dry cough, amoebic dysentery, asthma, and oral cavity problems**.**[9]
- **Almond (Prunus dulcis)**

  Almonds are rich of nutrients, oils, phenolic compounds, and phytosterols. It contains many health benefits such as antioxidant, anti-inflammatory, antimicrobial, anticancer, liver and heart-protective, brain-boosting, calming, and digestive-supporting effects.[10]

  It can help in blood pressure, lipid profile and glycaemic indices. It contains essential vitamin and minerals, monosaturated and poly unsaturated fatty acids.[11]
- **Cashew (*Anacardium occidentale*)**

  It contains variety of vitamins, minerals, amino acids and fibres. Cashew nuts in daily diet is reduced risk of cardiovascular disease and it also helps in prevention of diabetes, weight gain, gallstone, migraine headache.[12]
- **Coconut (*Cocos nucifera*)**

  Coconut is highly nutritious with healthy fats, protein, and fiber. Coconut water provides electrolytes, vitamins, and minerals for hydration. Coconut milk is a good source of energy and essential nutrients, and coconut oil provides medium-chain fatty acids that support metabolism and overall health.[13]
- **Deshi ghee (Anhydrous milk fat)**

  It has healthy fats, helps in digestion, healthy skin, enhances taste. According to *Ayurveda*, ghee enhances longevity and protects the body from various diseases.[14]
- **Raisins (*Vitis vinifera*)**

  Raisins are nutrient-rich dried fruits which provide quick energy, fiber, iron, calcium, boron, and antioxidants. They help in digestion, heart health, bone strength, and red blood cell production.[15]
- **Makhana (*Euryale ferox*)**

  Makhana (fox nuts) are very nutritious, low-calorie, gluten-free, immunity snack that is rich in protein, fiber, antioxidants, calcium, magnesium, and potassium. It helps in weight loss, heart health, digestion, bone strength, skin health, and blood sugar control.[16]
- **Turmeric (*Curcuma longa*)**

  In turmeric, a natural compound found called Curcumin. It has anti-inflammatory, antioxidant, and anticancer effects. It helps to manage obesity, metabolic problems, memory issues and mood disorders. Many research and clinical trials show its potential in treating various conditions such as arthritis, liver diseases, migraine, PMS, ulcerative colitis, PCOS, depression, psoriasis, and Alzheimer's disease.[17]
- **Chironji (*Buchanania lanzan*)**

  Chironji (*Buchanania lanzan*) is a multipurpose tree found in Indian deciduous forests, for tribal communities, it is very important. Its roots, leaves, seeds, fruits, and gum have medicinal uses, while the seeds are nutritious also used as an almond substitute. This plant is antidiabetic, antioxidant, anti-inflammatory, and wound-healing properties.[18]
- **Poppy seeds (*Papaver somniferum*)**

  Poppy seeds, rich in β-tocopherol, contain 40–45% oil, a natural antioxidant. This makes poppy seed oil a good source of tocopherols, which is making it an excellent source of natural compounds that protect fats from oxidation and promote health benefits.[19]

Therapeutic Benefits

Traditional recipes are specially helps to support postpartum recovery. The combination of ingredients helps:

- **Enhance Milk Production**: Ingredients such as coconut and ghee support lactation.
- **Reduce Back Pain**: Gond and almonds are believed to alleviate postpartum back pain.
- **Boost Energy**: High in fats and proteins, the laddu provides sustained energy, helping new mothers manage hunger and maintain vitality.
- **Healing Substances:** Spices like turmeric, ginger, and garlic have anti-inflammatory and healing effects for a new mother's body.

- **Antioxidants:** Spices such as cumin, coriander, and fenugreek, which is used in various food items, help reduce oxidative stress and chronic disease risk.
- **Dietary Fiber:** Whole grains, legumes, and vegetables aid digestion and support healthy weight.
- **Probiotics:** Fermented foods like idli, dosa (in south India), and yogurt promote gut health and improve digestion.[20]

CONCLUSION

Postpartum women are those who have recently given birth, either through cesarean or vaginal delivery. Postpartum women majorly require calcium for bone health and infant growth, and iron to maintain healthy blood and prevent anemia during lactation. The total energy of our *Sethura laddu* made with the above ingredients is 461.86 kcal per 100 grams, which is 16.3% RDA fulfilled. The investigation shows higher levels of calcium, dietary fiber, and adequate protein, which provide health and therapeutic benefits to postpartum women and enhance breast milk.

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***Address for correspondence**
Jaiswal Deepshikha
PhD Scholar,
Department of Prasuti Tantra,
Faculty of Ayurveda, Institute of Medical Sciences; Banaras Hindu University, Varanasi (U.P.),
Email: deepshikhaj20@gmail.com