

Development of A Nutrition-Rich Spread from Tender Coconut Flesh

Buvaneshwari. G¹; Kaviya Harshini. R²

¹Avinashilingam Institute of home science and higher Education for women, Coimbatore

²Department of food processing and preservation technology

Publication Date: 2025/05/26

Abstract: This study explores the development of a nutritious and innovative tender coconut flesh spread, combining the soft, jelly-like meat of young coconuts with jiggery and unsalted butter to create a naturally sweet, dairy-free product. Tender coconut flesh is rich in vitamin C and E, medium-chain triglycerides (MCT), and dietary fiber. Jiggery adds minerals and enhancing the nutritional value. The preparation method involves blending into the creamy consistency. Using natural preservative and stored airtight glass containers. This tender coconut spread offers a healthy alternative to conventional spreads, suitable for all age groups, including those with dietary restrictions such as diabetes.

Keywords: Tender Coconut Flesh, Natural Sweetener, Vegan Sweet Meat Spread, Dietary Product, Nutrient Food, Natural Preservative.

How to Cite: Buvaneshwari. G; Kaviya Harshini. R. (2025) Development of A Nutrition-Rich Spread from Tender Coconut Flesh. *International Journal of Innovative Science and Research Technology*, 10(4), 4299-4302. <https://doi.org/10.38124/ijisrt/25apr1978>

I. INTRODUCTION

Bread spreads are a variety of food products that are intended to improve the flavor and texture of bread, crackers, and other baked goods. They are commonly used as toppings or fillings to enhance the flavor of plain or toasted bread, and their ingredients and composition can vary greatly. Tender coconut (*cocosnucifera L.*) flesh commonly referred to as coconut meat, is the soft, creamy layer found inside young green coconuts. Young coconut flesh is soft and jelly-like, compared to mature coconut meat, which is more firmed fibrous. This young coconut meat is considered a delicacy in many culinary traditions, particularly in Southeast Asia and the Pacific Islands. Its many tropical and South Asian dishes, where it is frequently combined with spices, fruits, and its mild flavour and silky texture, delicate coconut flesh is a popular component dairy product.

Nutritionally, tender coconut (*cocosnucifera L.*) flesh is a good power house. It is rich in essential nutrients, including vitamins C and E, which are important for immune function and skin health. Additionally, it contains healthy fats, particularly medium chain triglycerides (MCTs), which are known for their potential health benefits, including supporting weight management and providing a quick source of energy. Jaggery is a product made by condensing sweet liquids from palm trees or sugarcane into a solid or semi-solid condition. This versatile ingredient can be used to make a variety of popular sweet meals across the globe. Jaggery provides protein, minerals, and vitamins. It contains more iron and copper than refined sugar, making it a high-quality

source. It is an energy food that was developed to purify the blood, regulate liver function, and promote overall health.

Butter is a milk fat derived from cream or yoghurt. Therefore, should not contain another fat. It is typically made with sweet cream and salted. It can also be produced with acidulated or soured cream with starter cultures. It has played a crucial role in nutrition since it contains fat-soluble vitamins such as A, D, E, and K. However, butter has been the subject of many dietary issues due to its saturated fat content, with health standards frequently recommending moderation in its consumption. Tender coconut spread is an innovative product that combines the creamy texture and mild sweetness of young coconut flesh with the versatility of a spread, which leads in a nutritious, dairy-free alternative that may be used on bread, crackers, or as a topping for various food preparations.

II. SPREAD FROM VARIOUS PRODUCTS

Peanut butter is a popular spread made from ground roasted peanuts, identified for its rich flavor and nutritional content. It is high in protein, good fats, vitamins, and minerals, all of which contribute overall health. It is often used as a bread spread, an ingredient in baked goods, smoothies, and savory foods, as well as a base for energy bars and protein shakes.

Peanut butter is a popular choice for athletes, children, and those searching for a nutrient-dense food given its high protein and energy content.

Almond butter (*Prunusdulcis*) contains much more fiber, calcium, and potassium than sunflower seed or peanut butter. The study evaluated the lipid-altering effects of roasted salted almonds and almond butter to raw almonds in a plant-based diet.

Cashew (*Anacardiumoccidentale*) is an important tropical nut that is both edible and industrialized. Cashew kernel baby bits were used to produce a sweetened and flavoured spread. Cashew kernels have high amounts of protein (21%), fat (46%), carbohydrates (25%), and minerals such as calcium, phosphorus, and iron. Consuming one ounce of nuts instead of carbohydrate can improve general health and lower the risk of heart disease.

III. NUTRITIONALVALUE

Table 1 Nutrition Value of 100g

Nutrients	Tender coconut flesh
Calories	80 kcal
Carbohydrates	7 gm
Protein	1.5 gm
Fat	3.5gm
Fiber	2gm
Potassium	300mg
Magnesium	30mg
calcium	20mg

IV. SELECTIONOFRAWMATERIAL

Selecting the good tender green coconut is essential to ensure that you get fresh, sweet coconut water and soft, jelly-like flesh inside. First, examine the coconuts outside appearance. A fresh, tender green coconut usually has a smooth, green or light yellowish- green husk. Next, examine the weight of the coconut. A healthy, delicate coconut should feel weighty for its size, indicating that it contains fresh coconut water. A fresh young coconut should have a mild, sweet, and pleasant aroma.

V. MATERIALSANDMETHODS

The spread basis consists of young, fresh tender coconut flesh like soft jelly texture, and clean sweet fine jiggery powder, and added some fat like unsalted butter. To enhance the spread flavour, add some nature flavouring agent cardamom powder and natural preservatives (lime juice) can be used increase shelf life and product quality.

VI. METHODOLOGYFORSPREAD PREPARETION

To prepare a tender coconut flesh spread, start by extracting soft, delicate the tender coconut flesh from young coconut. Next, weighing all the ingredients (tender coconut flesh, butter, jaggery) and taking the blender adding with tender coconut flesh, butter, jaggery and taking asalt if enhancing the flavour and taste. Blend the mixture until it becomes a smooth, soft and creamy texture. Then, take a vessel to make heat treatment maintain in 100°C at 5-10 minutes for blended paste and add few drops of natural preservative (lime juice) to mix well until the spread consistency. Cool in room temperature 25°C and stored in airtight glass container and keep in refrigeration at 15°C.

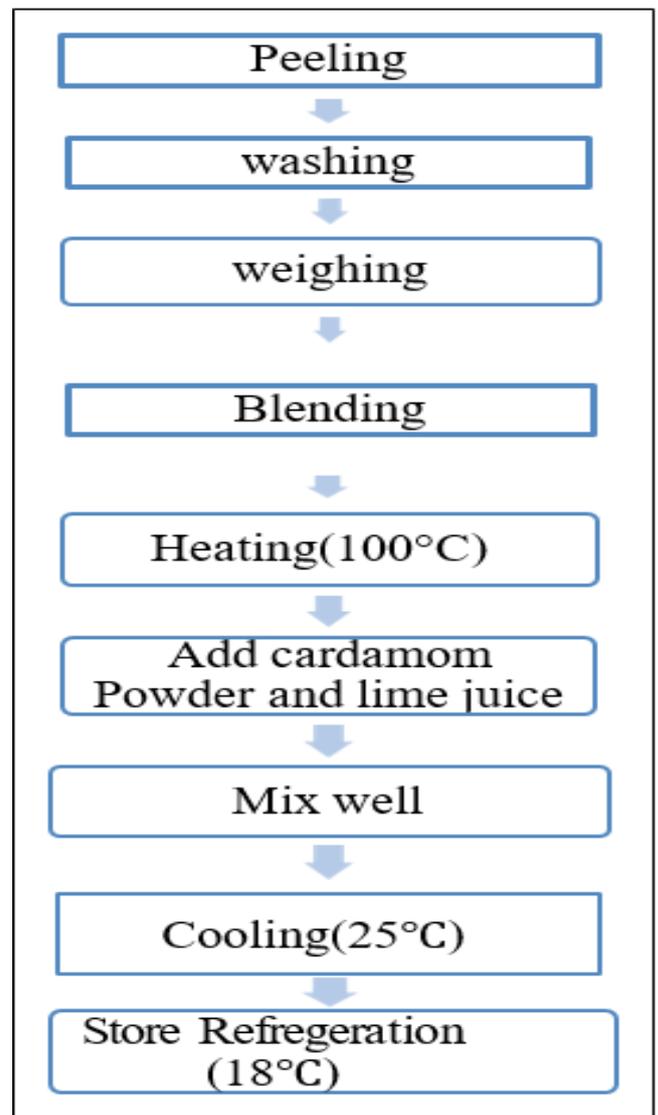


Fig 1 Methodology for Spread Preparation

VII. SHELF LIFE OF TENDER COCONUT FLESH

Tender coconut flesh is extremely perishable due to its high moisture content and sensitivity to microbial deterioration. Under normal conditions, fresh tender coconut flesh has a shelf life of 1-2 days before deteriorating due to microbial growth and enzymatic activity. When refrigerated at 4°C (39°F), its shelf life is extended to 7-10 days, as long as it is kept in an airtight container to prevent moisture loss and contamination. Freezing at -18°C (0°F) can keep the flesh fresh for up to six months, however minor texture changes may occur when ice crystals develop.

VIII. SHELF LIFE OF THE PRODUCT

The shelf life of tender coconut spread is determined by a variety of factors, including the ingredients used, storage conditions, and if preservatives are used. When made with just fresh tender coconut meat and natural sweeteners that are free of preservatives, the spread normally lasts 3 to 5 days when refrigerated at temperatures below 5°C in an airtight container. If using additional stabilizers or preservatives such as citric acid, natural preservatives the spread can also be frozen for long-term preservation, preserving it for up to 2 to 3 months. To avoid contamination and the absorption of unpleasant aromas, store the spread in a clean, dry, sealed glass container.

Table 2 Shelf life of Product

S no	Days	Temperature	Changes
1.	1-7days	18°C	Fresh and no changes
2.	8-15 days	18°C	No changes
3.	16-22days	18°C	Starting to contamination
4.	1month	18°C	Off odor and spoilage

IX. PACKAGING MATERIAL

The packaging material used for glass containers in tender coconut spread is essential for preserving the product's quality, safety, and shelf life. Glass container is an inert and non-reactive material, that helps retain the natural taste, aroma, and nutritional value of the spread without any chemical interaction. These containers are typically, sealed with metal or plastic lids featuring food-grade inner linings, such as polyvinyl chloride (PVC), to ensure product safety. Additionally, glass is recyclable and considered an environmentally friendly, sustainable packaging option. However, its heavier weight and fragility compared to plastic, glass requires careful handling and protective packaging during transportation and storage.

X. CONCLUSION

The young tender coconut flesh, with its pleasant flavour, consistency and color, provide a suitable alternative natural fat less spread. The creation of vegan sweet meat spread from young coconut flesh, healthy sweetener jaggery and unsalted butter. It has consumable for all age groups especially diabetics patient. This study is helpful for making a development new food product from tender coconut flesh.

REFERENCE

- [1]. Adeyeye, E. I., & Oyarekua, M. A. (2015). Chemical composition and shelf life of tender coconut meat. *Journal of Food Science and Technology*, 52(4), 2345-2352. doi: 10.1007/s13394-014-1237-4
- [2]. Allen, S., & Green, M. (2018). *Bread and spread combinations: A cultural and nutritional perspective*. *Journal of Culinary Science*, 15(3), 45-56.
- [3]. Alper, C. M. (2012). Avocados: A nutritional powerhouse. *Nutritional Insights*, 15(3), 45-47.
- [4]. Arya, S.S., Salve, A.R., & Chauhan, S. (2016). Pea nuts as functional food: A review. *Journal of Food Science and Technology*, 53(1), 31-41
- [5]. Arya, S.S., Salve, A.R., & Chauhan, S. (2016). Peanuts as functional food: A review. *Journal of Food Science and Technology*, 53(1), 31-41
- [6]. Begley, T. H., McNeal, T. P., Biles, J. E., & Paquette, K. E. (2002). Evaluating the potential for recycling all PET bottles into new food packaging. *Food Additives & Contaminants*, 19(S1), 135-143.
- [7]. BISWAL, S.R. (2019). DEVELOPMENT OF PROCESS PROTOCOL FOR
- [8]. Bortolotti, S. (2011). *History of butter and butter-making: From ancient times to the present*. Dairy Publishing.
- [9]. Davis, R. (2021). *Homemade seed butters: Storage and shelf-life considerations*. *Food Science Journal*, 48(2), 135-150.
- [10]. Deb Mandal, M., & Mandal, S. (2011). Coconut (*Cocos nucifera* L.: Arecaceae): In health promotion and disease prevention. *Asian Pacific Journal of Tropical Medicine*, 4(3), 241-247.
- [11]. Khan, M. R., & Aslam, S. (2023). Cardamom Safety. In *Cardamom (Elettaria cardamomum): Production, Processing and Properties* (pp. 227-241). Cham: Springer International Publishing.
- [12]. Kumar, P., Vasistha, H. K., & Shukla, S. (2018). Young coconut water: An ideal drink for hydration. *International Journal of Food Science*, 2018, 1-6.
- [13]. Kwak, H.S., Ganesan, P., & Mijan, A.M. (2013). Butter, ghee, and cream products. *Milk and dairy products in human nutrition: Production, Composition and Health*, 390, 411.
- [14]. Lee, R.S., & Choi, J.M. (2020). Nutritional composition and health benefits of young coconut meat and water: A review. *Food Science and Biotechnology*, 29(4), 405-412.

- [15]. Nath, A., Dutta, D., Kumar, P., & Singh, J.P.(2015). Review on recent advances in value addition of jaggery based products. *J Food Process Technol*, 6(4), 1000440.
- [16]. Nayik, G. A., & Majid, I. (2017). Sugar and its types: A review on their sources, composition, and health implications. *Journal of Food Science and Technology*, 54(9), 3007-3015.
- [17]. Qiblawi, S., Kausar, M. A., Shahid, S. M. A., Saeed, M., & Alazze, A. Y. (2020). Therapeutic interventions of cardamom in cancer and other human diseases. *Journal of Pharmaceutical Research International*, 32(22), 74-84.
- [18]. Ramadan, M. F. (2023). Introduction to Cardamom (*Elettaria cardamomum*): Production, Processing, and Properties. In *Cardamom (Elettaria cardamomum): Production, Processing and Properties* (pp. 1-9). Cham: Springer International.
- [19]. Rashid, M. A., Aziz, S., & Shaheen, M. (2017). Nutritional composition and applications of butter. *Food Chemistry*, 237, 321–328.
- [20]. Reese, P. M. (2024). The Effect of Packaging on the Acceptance of Natural Peanut Butter.