DR-2257
[1-10]

RESEARCH ARTICLE Asian Journal of Dairy and Food Research, Volume 45 Issue 4 (August 2026)

Grainy Delight: Pearl and Finger Millet Cassata

Divya Lakshmi S[1], Saranya Kannan Sankaran[1], Sadhana Balaji[1], Samantha G. Haribabu[1], 10.18805/ajdfr.DR-2257

ABSTRACT

Background: Ice cream is a treat that people of all ages enjoy, but some individuals with certain disorders and senior citizens avoid it due to the formulations. However, pearl and finger millet are two millets commonly consumed in different parts of India and have gained popularity recently due to their numerous health benefits and unique flavor profiles. It is often used in various cuisines to make porridge, bread, and other dishes.

Methods: Combining these two millets in a cassata formulation, we can develop a unique flavor profile of ice cream that is healthy and delicious. Cassata combines layers of sponge cake, cream, and nut garnish. The cake is made with a blend of pearl millet and finger millet flours, which gives it a unique flavor and texture. This formulation could also act as an alternative source of minerals, replacing wheat flour. The development of a millet-based cassata concoction has the potential to contribute to a more diverse and sustainable food system.

Result: The developed formulation has been subjected to nutritional analysis and found healthy. The nutrient contents are balanced and provide sufficient energy. The millets in the concoction act as the stabilizing agent, flavoring agent, and coloring agent. The concoction comprises minimum total sugar and fat content and sufficient minerals, dietary fibers, and protein. A natural, healthy dessert can minimize the consumption of unhealthy food products.

Key words: Cassata, Concoction, Finger millet, Nutrient, Pearl millet.

INTRODUCTION

Ice cream is a popular frozen dairy product enjoyed worldwide. It's a beloved dessert across all demographics, known for its rich and appealing qualities. With around 100-120 kcal per 100 g, it also serves as a good source of energy (Sivakumar *et al*., 2017).

Erroneous preparation methods and ingredients can elevate cholesterol, sugar and caloric values, posing risks for diabetics and heart patients. Research indicates that excessive cow's milk consumption can cause lactose intolerance and increase low-density lipoprotein (LDL) levels, contributing to degenerative diseases (Camila *et al*., 2017). Non-dairy plant-based milk alternatives can help mitigate these issues and are recognized globally as functional beverages. They also serve as an affordable option for low-income populations seeking alternatives to cow's milk (Amirtha *et al.,* 2021).

Millet releases its glucose more slowly and gradually over time than rice. They're regarded as the easiest grains to digest without acidity and the least allergenic with highest percentage of dietary fiber (Devika and Mishra, 2017; Manivannan *et al*., 2023). Millets have higher mineral content and beneficial dietary fibers compared to rice or wheat. Their bioactive substances, including phenols and tannins, support antioxidant activity, which is important for good health and may help prevent metabolic issues (Geetha *et al.,* 2023). Beyond their nutritional value, millets can aid in managing conditions like obesity, hyperlipidaemia and diabetes mellitus, as discussed in the International Journal of Scientific Research in Science and Technology (Srinivasan *et al.,* 2019).

[1]Department of Biotechnology, Rajalakshmi Engineering College, Anna University, Thandalam, Chennai-602 105, Tamil Nadu, India.

Corresponding Author: Divya Lakshmi S., Department of Biotechnology, Rajalakshmi Engineering College, Anna University, Thandalam, Chennai-602 105, Tamil Nadu, India.
Email: divyalakshmi.s@rajalakshmi.edu.in
ORCID: https://orcid.org/0009-0008-7323-180X

How to cite this article: Lakshmi, D.S., Sankaran, S.K., Balaji, S. and Haribabu, S.G. (2026). Grainy Delight: Pearl and Finger Millet Cassata. *Asian Journal of Dairy and Food Research*. **45(4):** doi: 10.18805/ajdfr.DR-2257.

Submitted: 15-07-2024 **Accepted:** 23-01-2025 **Online:** 15-03-2025

MATERIALS AND METHODS

The research work was carried out at Rajalakshmi Engineering College from June 2023 to September 2023. The ingredients according to chart (Fig 1) are:

1) Jaggery
2) Finger millet
3) Pearl millet
4) Curd
5) Butter
6) Whipping cream

Millets: The master ingredient

Millet ice cream offers a nutritious alternative with high fiber, low fat and essential vitamins and minerals. Its health benefits and versatility in cooking make it an appealing innovation in frozen desserts (Adefegha *et al*., 2013). The benefits are enumerated below:

1. High nutrient content (Saleh *et al*., 2013).
2. Better digestive health (Hager *et al*., 2012).
3. Suitable for gluten sensitivities (Kumar *et al.,* 2017).
4. Unique texture and flavour: Addition of finger and pearl millet, which give it a subtle nutty flavour and unique texture (United Nations 2019).

(Table 1) and (Fig 2) represents the individual composition of millets in the product. The X-axis shows the number of trails and the composition variation. The Y-axis shows the percentage of each millet for each trail. Blue colour indicates the contribution of Finger millet and pink colour indicates the composition of Pearl millet.

Finger millet

Finger millet (*Ragi*) are nutrient-dense, energy-rich foods, offering therapeutic and nutritional benefits. Its excellent thickening and water-binding qualities make it popular and using it in ice cream may reduce stabilizer requirements and serve as a fat substitute (Roopal *et al*., 2022). It is well known for having a high concentration of vital nutrients, such as iron, calcium, dietary fibre and protein, which makes it an important component in treating malnutrition (Desai and Dutta, 2023). The Nutritional values of the finger millet contributes widely to our usage in this ice cream and represented in (Table 2).

Pearl millet

Pearl millet, is well-known for thriving in challenging environments, is essential for ensuring food security. Pearl millet, which is rich in vital nutrients like protein, fibre, vitamins

Table 1: Millet composition.

Trail count	Percentage of millet (%) (Y-axis)	
(X-axis)	Finger millet	Pearl millet
1	45	55
2	35	65
3	40	60

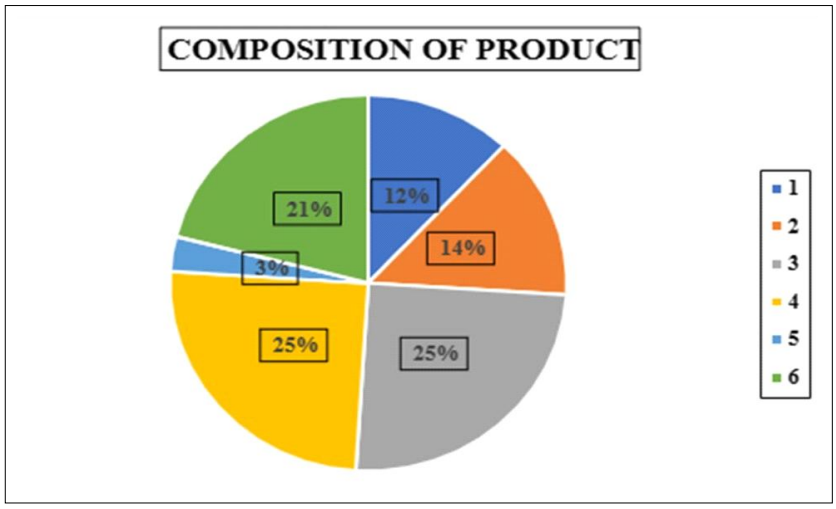


Fig 1: Composition of product.

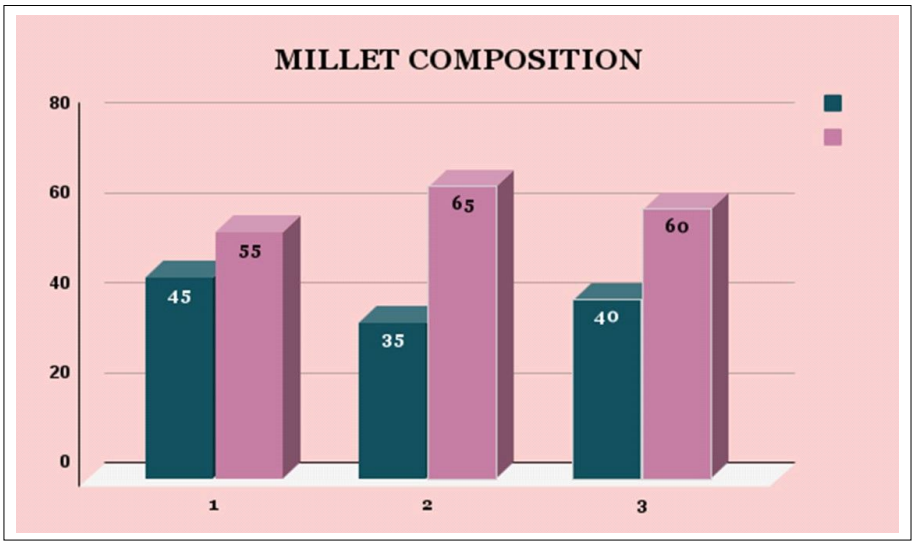


Fig 2: Millet composition.

and minerals, is becoming more well-known for its potential to help solve contemporary food issues, such as the development of novel products like pearl millet milk (Mahalakshmi *et al.*, 2024).

Lactose intolerant people, vegans and people looking for a varied and sustainable diet can all benefit from this substitute. Recognized for its distinct nutty flavour and velvety consistency, it is an adaptable component in a wide range of culinary uses (Andhare *et al.*, 2019). The approximate distribution of nutrients is depicted in Table 3.

Other ingredients

Jaggery

Jaggery is an unrefined and traditional sweetener, which is unique and made from the sap of date palms or sugarcane. It is praised for its distinct flavour profile and possible health benefits. Its earthy undertones and rich, caramel-like flavour provide a delightful contrast to the smooth, creamy texture of ice cream.

Jaggery can be a good substitute for white sugar in cassata ice cream for several reasons: (Prasad *et al.*, 2006).

1. Sugarcane or date palm natural sweetener that is more naturally occurring and less processed.
2. Rich flavour.
3. Nutrition.
4. Lower glycaemic index.

Curd

Curd is the good substituent for the baking soda and baking powder in certain baking recipes. Curd can mimic this effect because of its naturally occurring acidity. To keep the recipes desired consistency, 1/4 cup of curd can be used in place of 1 teaspoon of baking powder. Curd is a great alternative for recipes where baking powder adds a hint of tanginess, like in pancakes, waffles, muffins or some cakes. Whereas in baking soda, it acts as alkaline leavening agent where the curd due to its acidic activity serves as the alkaline leavening agent and works well with the recipes like quick bread, chocolate cake or chocolate chip cookies (Gisslen, 2017).

Whipping cream

A crucial component in the making of ice cream because of:

Fat content

The average whipping cream contains a high percentage of fat (36-40%) which gives distinctive mouthfeel and creamy, smooth texture.

Flavour

Whipping creams fat also imparts flavour. This ensures a well-rounded taste by binding and dispersing the flavours from the other ingredients in the ice cream base.

Freezing point depression

The freezing point of the ice cream mixture is impacted by the fat content of the whipping cream essential for creating a smoother texture by preventing the formation of ice crystals during freezing (Yangılar, 2016).

Methodology

The formulation of Millet cassata is done in two processes, one is the process of making the base cake and other is the process of icing and layering the ice cream.

Base cake making

It is the first and foremost process (Fig 3).

Icing and layering of the ice cream

It is the next step in the process and the crucial one (Fig 4).

RESULTS AND DISCUSSION

A flavoursome millet cassata concoction of 250 g is formulated using master millet ingredients such as pearl millet and finger millet. The millet cassata appeared

Table 2: Approximate nutritional content of the finger millet per 100 grams (Kumari and Sumati, 2002).

Components	Nutritional values
Calories	336 kcal
Carbohydrates	72 g
Dietary fibre	3.6 g
Proteins	7.7 g
Fat	1.3 g
Calcium	344 mg
Iron	3.9 mg
Potassium	408 mg
Magnesium	114 mg
Phosphorus	283 mg
Vitamin B1	0.33 mg
Vitamin B2	0.11 mg
Vitamin B3	1.2 mg

Table 3: Approximate nutritional content of the finger millet per 100 grams (USDA).

Components	Nutritional values
Calories	378 kcal
Carbohydrates	73.9 g
Dietary fibre	8.3 g
Proteins	11.8 g
Fat	4.2 g
Calcium	38 mg
Iron	8.8 mg
Potassium	307 mg
Magnesium	114 mg
Phosphorus	285 mg
Vitamin B1	0.38 mg
Vitamin B2	0.29 mg
Vitamin B3	1.6 mg
Zinc	2.8 mg

smooth and consistent. The solid and liquid nature of the product are equally balanced to maintain consistency. The flavour of the product was stable without any overlapping. The millet cassata is prepared in a hygienic way and stored for a period of three days at a freezing temperature of 4-8°C. The pictorial representation of the concoction is placed to differentiate the appearance and texture for some period to analyse the shelf life of the product. Fig 5 to 8 represent the various stages in shelf-life analysis.

The parameters of the product are predicted through a standard analysis procedure and described. The parameters

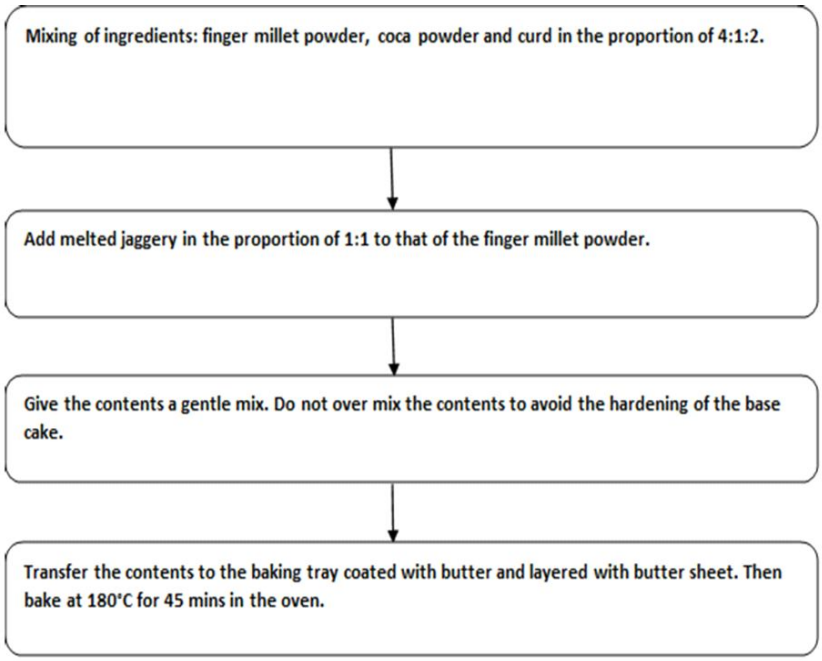


Fig 3: Process of base cake.

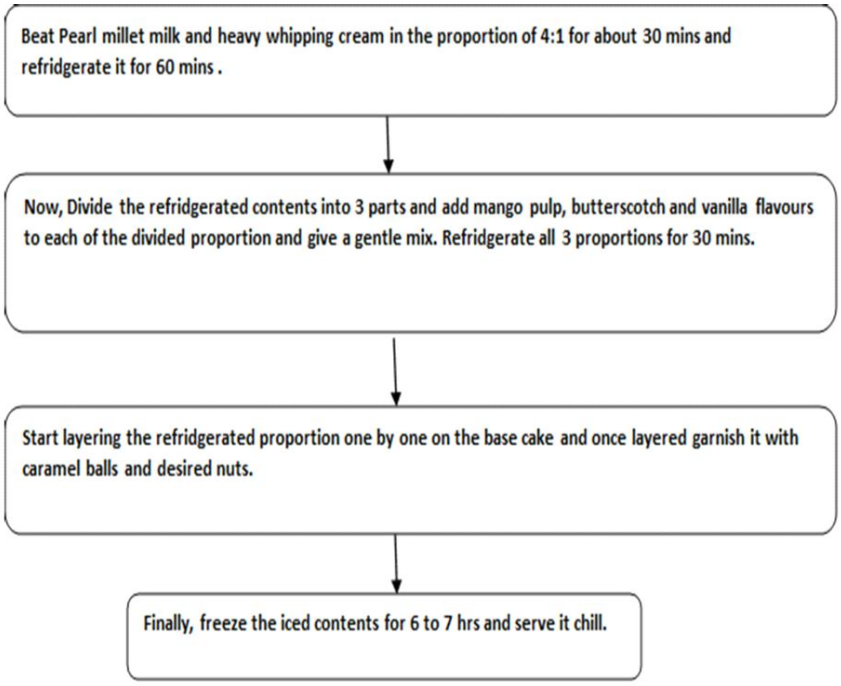


Fig 4: Process of icing and layering the ice cream.

estimated through nutritional analysis are listed in the Table 4.

Energy

The cassata consisting of carbohydrates, fats and proteins, is metabolised to yield energy. The energy release varies with the food product, product constituents and product composition. The cassata formulated with finger millet, pearl millet, wheat millet, butter and jaggery mainly serves as the energy source. The energy value of the sample is found to be 273.5 kcal/g in trail 1, 274.0 kcal/g in trail 2 and 274.59 kcal/g in trail 3 (Fig 9). The energy value is estimated by the FAO Method. The energy content of the product is comparatively higher than that of milk-based ice cream and other millet-based ice cream (Amirtha *et al.,* 2021, Hemali and Bijal, 2015).

Carbohydrate

Carbohydrates are the primary source of energy. The millet ingredients and the jaggery in the formulation are the carbohydrate reservoirs. The carbohydrate content in the sample is estimated to be 49.2 g/100 g in trail 1, 49.0 g/100 g in trail 2 and 49.9 g/100 g in trail 3 [Fig 10 (a)]. The carbohydrate content is measured through the CTL/SOP/FOOD/262 (2014) standard procedure. The estimated carbohydrate content is higher than that of regular milk-based ice cream and other millet-based ice cream (Amirtha *et al.,* 2021; Miano *et al.,* 2021).

Total fat

The fats are responsible for releasing higher energy value compared to carbohydrates and proteins. The butter and whipping cream act as the source of fats converted into fatty acid and glycerol. The total fat content including saturated and unsaturated fat is determined to be 7.0 g/100 g in trail 1, 7.1 g/100 g in trail 2 and 7.5 g/100 g in trail 3 [Fig 10 (b)]. The carbohydrate content is measured through the AOAC 20th Edn. 2016, 954.02 standard procedure. The total fat content is similar to that of milk-based ice cream and higher than that of other millet-based ice cream (Amirtha *et al.,* 2021, Hemali and Bijal, 2015).

Fig 5: Day 1- Fresh pearl-finger millet concoction.

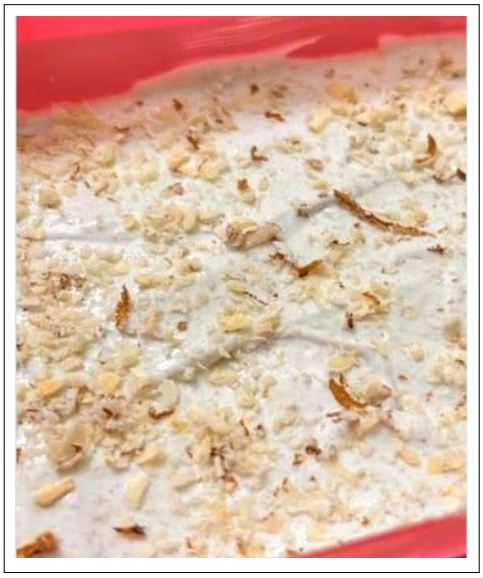


Fig 6: Day 2 - Fresh pearl-finger millet concoction.

Table 4: Test parameters.

Parameters	Trail 1	Trail 2	Trail 3	Units
Energy	273.5	274.0	274.59	kcal/100 g
Carbohydrate	49.2	49.0	49.9	g/100 g
Total fat	7.0	7.10	7.5	g/100 g
Protein	3.4	3.62	4.05	g/100 g
Dietary fibre	1.6	1.24	1.19	g/100 g
Total sugar	31.9	32.6	33.0	g/100 g
Sodium (Na)	189.0	188.0	188.7	mg/100 g
Calcium (Ca)	85.0	84.3	83.9	mg/100 g
Iron (Fe)	4.20	3.85	3.56	mg/100 g
Flavonoid (Antioxidant)	67.3	60.5	65.7	µg/100 g

Protein

The proteins are required for maintaining the metabolic activities and energy release. The millets and the curd in the formulation contribute to the protein content. The protein content is determined to be 3.4 g/100 g in trail 1, 3.62 g/100 g in trail 2 and 4.05 g/100 g in trail 3 [Fig 10 (c)]. The amount of protein is estimated through the AOAC 20th Edn. 2016, 986.25 standard procedure. The proportion of protein is much the same as that of milk-based ice cream and lower than that of other millet-based ice cream (Amirtha *et al.,* 2021; Hemali and Bijal, 2015).

Dietary fibre

The dietary fibres are required for maintaining the excretion and bowel health. The pearl millet and the finger millet in the formulation contribute the dietary fibre value. The dietary fibre content is determined to be 1.6 g/100 g in trail 1, 1.24 g/100 g in trail 2 and 1.19 g/100 g in trail 3 [Fig 10 (d)]. The amount of dietary fibre is estimated through the AOAC 20th Edn. 2016, 985.29 standard procedure. The proportion of dietary fibre is much lower than that of foxtail millet-based ice cream and slightly higher than that of normal ice cream formulation (Yangilar, 2016).

Total sugar

The total sugar concentration in the product determines the sweetness and governs the flavour of the ice cream. The whipping cream and the jaggery in the formulation are responsible for the sugar concentration. The total sugar concentration is determined to be 31.9 g/100 g in trail 1, 32.6 g/100 g in trail 2 and 33 g/100 g in trail 3 [Fig 10 (e)]. The total sugar concentration is estimated through the FSSAI Manual 2015-Beverages, Sugars and Confectioneries standard procedure. The total sugar concentration is much lower than that of foxtail millet-based ice cream and slightly higher than that of a normal ice cream formulation (Sivakumar, 2017; Miano *et al.,* 2021).

Sodium (Na)

The sodium ion concentration in the product helps maintain the ionic balance in the body and is crucial for signal transmission. The pearl millet and the finger millet in the formulation are responsible for the sodium ion concentration. The sodium ion concentration is determined to be 189 mg/100 g in Trail 1, 188 g/100 g in Trail 2 and 188.7 mg/100 g in Trail 3 [Fig 10 (f)]. The sodium ion concentration is estimated through the AOAC 20th Edn. 2016, 969.23 standard procedure. The sodium ion concentration is much lower than millet-based ice cream and regular ice cream formulations (Yangilar, 2016).

Calcium (Ca)

The calcium ion concentration in the product helps maintain the ionic balance in the body and is important for bone and cartilage development. The curd, jaggery, pearl millet and finger millet in the formulation are sources for the calcium ion concentration. The calcium ion concentration is determined to be 85 mg/100 g in trail 1, 84.3 g/100 g in trail 2 and 83.9 mg/100g in trail 3 [Fig 10 (g)]. The calcium ion concentration is estimated through the IS 5949:1990 (RA, 2003) standard procedure. The calcium ion concentration is much the same as that of milk-based ice cream and normal fruit formulation and higher than that of other millet-based ice cream (Amirtha *et al.,* 2021; Hemali and Bijal, 2015; Yangilar, 2016).

Iron (Fe)

The iron ion concentration in the product helps maintain the haemoglobin level in the body and is important for RBC

Fig 7: Day 3 - Start of degradation of constituents.

Fig 8: Day 4 - Spoilage of product due to microbial growth.

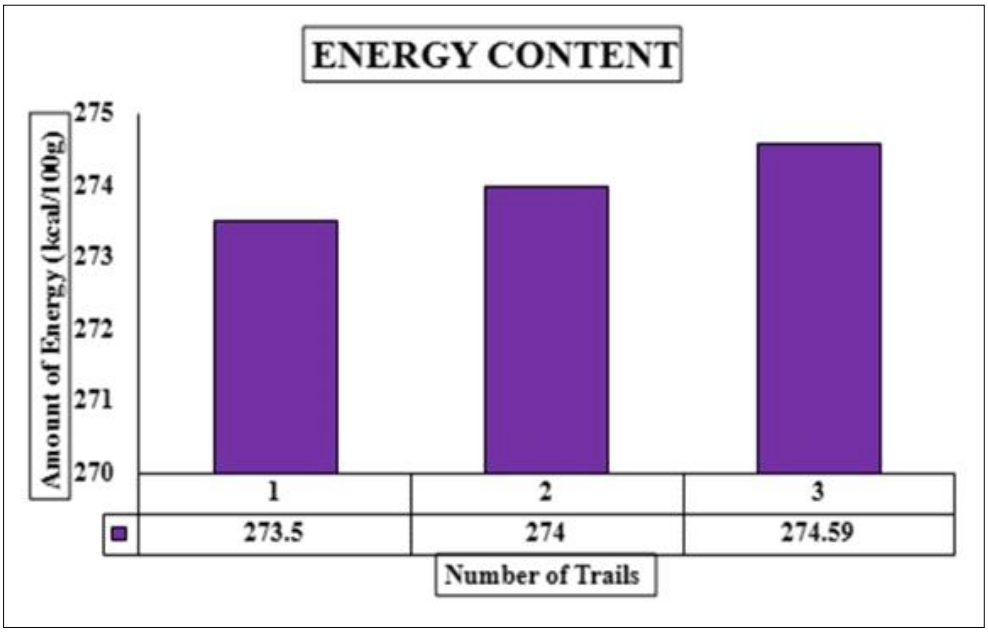
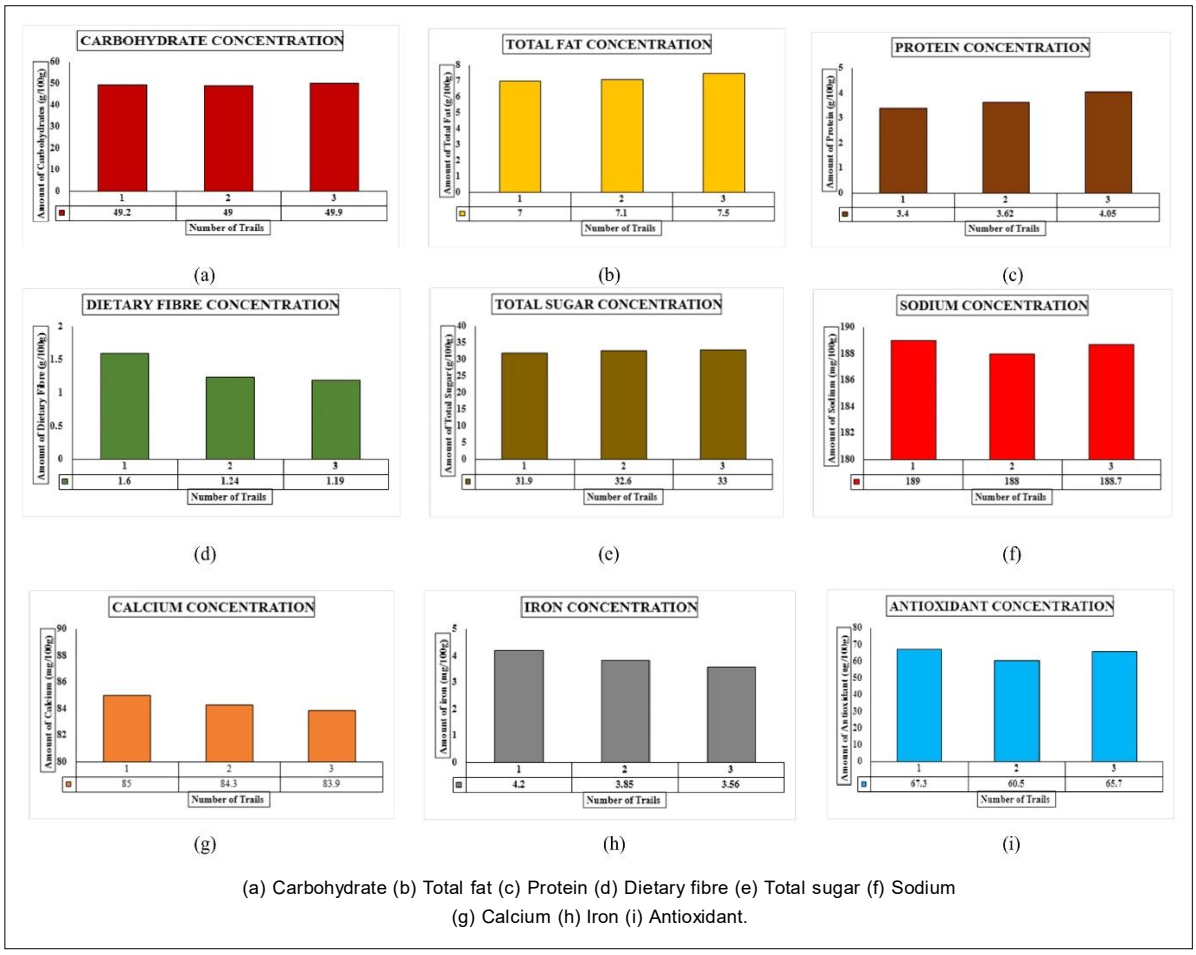


Fig 9: Energy content.



(a) Carbohydrate (b) Total fat (c) Protein (d) Dietary fibre (e) Total sugar (f) Sodium
(g) Calcium (h) Iron (i) Antioxidant.

Fig 10: Concentration of nutrient parameters.

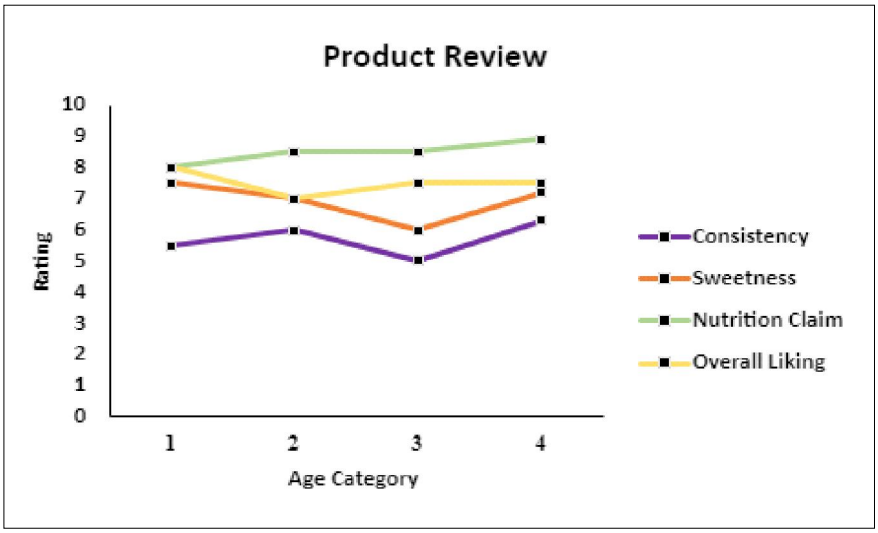


Fig 11: Review of the concoction.

Table 5: Rating of the product.

Age category	Consistency	Sweetness	Nutrition claim	Overall liking
1(19-29 years)	5.5	7.5	8	8
2 (30-49 years)	6	7	8.5	7
3 (50-69 years)	5	6	8.5	7.5
4(70-79 years)	6.3	7.2	8.9	7.5

development. The jaggery, pearl millet and finger millet in the formulation are sources for the iron ion concentration. The iron ion concentration in the formulation is estimated to be 4.2 mg/100 g in trail 1, 3.85 g/100 g in trail 2 and 3.56 mg/100 g in trail 3 [Fig 10 (h)]. The iron ion concentration is estimated through the AOAC 20th Edn. 2016, 999.11 standard procedure. The iron ion concentration is lower than that of milk-based ice cream, normal fruit formulation, and other millet-based ice cream (Hemali and Bijal 2015, Yangilar, 2016).

Flavonoid (Antioxidant)

The concentration of flavonoids in the product depicts the antioxidant property in the formula. Generally, millets have high amount of antioxidants such as flavonoids, phenolic acids. The antioxidant concentration is determined to be 67.3 µg/100 g in trail 1, 60.5 µg /100 g in trail 2 and 65.7 µg /100 g in trail 3 [Fig 10 (i)]. The concentration of flavonoids is estimated through the standard procedure. Finger millet is known for its appreciative concentration of antioxidants. The product has higher value of flavonoids (Yangilar, 2016).

Interpretation and discussion

Pearl millet and finger millet are both nutritious and versatile grains. They are used to create unique and healthy ice cream flavors. This unique formulation is delicious and packed with the nutritional benefits of pearl and finger millet. The millet cassata does not contain flavoring agents or added colors. The flavors of pearl millet and finger millet are well-balanced. The base of the cassata appears fluffy and the cream overlaid is of semi-solid consistency.

The consistency of this formulation maintains the concentration of fluid and solid phases in the formulation. The formulation remains stable for three days if stored at 4°C. The microbial growth is observed after three days, which was indicated by the deterioration of constituents in the sample. The shelf life of the formulation remains intact without any added preservatives.

Millets are naturally gluten-free, which makes millet-based ice cream suitable for individuals with gluten intolerance or celiac disease and can expand the range of ice cream options available to those with dietary restrictions (Yangilar, 2016). Individuals with lactose intolerance can consume this milk-free formulation. Antioxidants prevent a lack of balance between reactive oxygen and defense mechanisms and help protect the body from oxidative stress and various diseases. Including finger millet in ice cream can boost its antioxidant properties.

The energy value in the sample is significantly high and recommended for children as a healthy snack as they are much more involved in physical activities, including playing and studying. The cassata does not increase the blood glucose level, as the sugar level is significantly lower, and there is a low risk of lipid deposition in the arteries and veins due to the low-fat content. The cassata comprises sufficient protein levels and a minimal proportion of dietary fibers. The mineral concentrations are comparatively higher

and regulate body functions. This formulation does not fall under the junk food category because there are negligible additions of food chemicals such as stabilizers, preservatives, food colors and other substances.

Product review

The product has rated by few individuals of different age category. The mean of the rating is depicted in the table.

Table 5 and Fig 11 represents the product review. The consistency of the product is rated good. The sweetness is comparatively low than the normal formulations. The nutrient content in the concoction is high and no health issues have been reported. It is healthy because of natural ingredients in the composition. The formulation has no adverse effects in blood sugar level (diabetes) and heart function. The overall rating ranges in the choice of liking of the millet concoction. Hence, everyone can eat millet cassata, regardless of age.

CONCLUSION

Millet-based formulations are developed to improve the nutritional value of food products, promoting a healthy lifestyle. The food products we consume are primarily responsible for the function and chance of disease in our body. The millet cassata is an alternative to unhealthy ice cream formulations. This product satisfies the taste buds as well as providing nutrients. Millet-based food formulations are being developed for all categories of food substances. Incorporating millets into ice cream is an innovative way to make this dessert more nutritious and environmentally friendly. It aligns with the growing interest in healthier and more sustainable food choices and can contribute to the diversification of the food industry. We need to educate citizens about the nutritional benefits of millets and their contribution to sustainable agriculture. This can create a positive impact and help build a healthy community.

ACKNOWLEDGEMENT

The completion of this research article was made possible through the collaborative efforts and support of individuals and the institution and we would like to express our gratitude to them.

First and foremost, we extend our sincere appreciate to our research advisor, for their guidance, valuable insights and unwavering support throughout the entire research process. Their expertise and commitment played a pivotal role in shaping the direction and quality of this study.

We would also like to acknowledge the contributions of co-authors, whose collaborative efforts and diverse perspectives enriched the content and methodology of this research.

We appreciate the constructive feedback received from our peers and colleagues during various stages of this research. Their insights played a crucial role in refining our methodology and enhancing the overall quality of the manuscript.

Author contribution statement

Divya lakshmi formulated the research idea, study design and research methods of the experiment and guided the other authors as a reviewer. Saranya Kannan Sankaran analysed and interpreted the data, created the visualization of the result, framed the draft and managed overall research process. Sadhana Balaji is involved in field work, provided the essential resources for the project and validated the project. Samantha Haribabu worked in the experiment, collected data and supported the draft.

Conflict of interest

The authors declare that there are no conflicts of interest regarding the publication of this article.

REFERENCES

Adefegha, S.A. Oboh, G. and Adefegha, O.M. (2013). Chemical and antioxidant properties of some cereals and legumes commonly consumed in Nigeria. *Biochemistry Research International.*

Amirtha, G. Vijaya Vahini, R. and Sarah Priscilla, S. (2021). Formulation and proximate evaluation of barnyard millet-based ice cream. *International Journal of Multidisciplinary Research in Arts, Science and Commerce (IJMRASC)*. **1(2):** 59-66.

Andhare, R.N., Deshmukh, P.V., Thakare, V.M. and Gawande, S. (2019). Development and quality evaluation of pearl millet (*Pennisetum typhoides*) based milk. *Journal of Pharmacognosy and Phytochemistry*. **8(1):** 2173-2176.

Camila, F.D.P., Romero, C., Nerea, L.M.M. and Iñaki, A.J. (2017). Introduction of a new family of ice creams. *International Journal of Gastronomy and Food Science*. **7:** 5-10.

Desai, R.K., Dutta, S. (2023). Development of finger millet and sapota based ready-to-reconstitute Halwa mix. *Asian Journal of Dairy and Food Research*. **42(3):** 380-385. doi:10.18805/ajdfr.DR-2007.

Devica, R.S. and Mishra, B.K. (2017). Studies of sensory evaluation and shelf-life of foxtail millet-based softy ice-cream. *International Journal of Scientific Research in Science, Engineering and Technology (IJSRSET)*. **3(8):** 395-6011.

Geetha K., Yankanchi M., Geetha, Hiremath Nethravathi, Yatnatti Shilpa, Sajjan T., Jyothi, Veena, B.M. (2023). Nutritional Composition and Shelf Life Evaluation of Millet based Composite Mix. *Asian Journal of Dairy and Food Research.* **42(3):** 340-347. doi: 10.18805/ajdfr.DR-1665.

Gisslen, W. (2017). Professional Baking. Wiley.

Hager, A.S., Wolter, A., Jacob, F., Zannini, E. and Arendt, E.K. (2012). Nutritional properties and ultra-structure of commercial gluten-free flours from different botanical sources compared to wheat flours. *Journal of Cereal Science*. **56(2):** 239-247.

Hemali, H.P. and Bijal, K.A. (2015). Formulation and standardization of different milk ice-cream fortified with pink guava pulp. *International Journal of Dairy Science*. **10(5):** 219-227.

Kumar, S.R., Ramanjaneyulu, A.V., Kammar, S. and Chittapura, N.M. (2017). Development of gluten-free bread using foxtail millet. *Journal of Food Science and Technology*. **54(13):** 4271-4279.

Kumari, K.R. and Sumathi, S. (2002). Nutrient composition and protein quality evaluation of finger millet (*Eleusine coracana L.* Gaertn.) by Indian geese. *Food Chemistry*. **77(2):** 273-281.

Mahalakshmi, S., Malavika, S., Sindhuja, T.R., Priya Lakshmy, K. (2024). Pearl Millet: Potential Nutraceutical Properties of Pearl Millet and its Utilization in Various Food Products: A Review. *Bhartiya Krishi Anusandhan Patrika*. **39(1):** 46-50. doi: 10.18805/BKAP432.

Manivannan, S., Manoj Kumar, P., Anu Suprabha, R., Mehreen Iftikhar, Vara Prasad, P.V. and Kaliramesh, S. (2023). Considerations for gluten-free foods-pearl and finger millet processing and market demand. *Grain and Oil Science and Technology*. **6(2):** 59-70.

Miano, T.F., Imtiaz, M., Shamim, A. and Mohyuddin, S.G. (2021). Effect of various ingredients on the physicochemical properties of ice cream. *Pakistan Journal of Science*. **73(2):** 378-383.

Prasad, M.B.N., Gopal, N., Venkatachalam, L., Gouri, S. and Raghu, P. (2006). Antioxidant and anticancer activities of jaggery. *Food Chemistry*. **97(3):** 452-458.

Roopal, M., Marar, T., Sachin, K.S. and Pravin, B. (2022). Comparative study of ice-cream cones developed from refined wheat, ragi, buckwheat, bajra, amaranth and composite flour. Measurement: *Food*. **6:** 100033.

Saleh, A.S.M., Zhang, Q. and Chen, J. (2013). Millet grains: Nutritional quality, processing and potential health benefits. *Comprehensive Reviews in Food Science and Food Safety*. **12(3):** 281-295.

Saleh, A.S.M., Zhang, Q. and Chen, J. (2013). Quality characteristics of bread and cookies enriched with millet flour. *International Journal of Food Science and Technology*. **48(7):** 1533-1540.

Sivakumar, G.M. (2017). Sensory evaluation of foxtail millet incorporated sugar-free ice cream. *International Journal of Science, Environment and Technology*. **6(4):** 2576-2580.

Srinivasan, N., Kalaiselvi, P., Mohamad Fawzi, M., Gokhan, Z., Abirami, A. and Gopalakrishnan, S. (2019). Nutritional and functional roles of millets-A review. *Journal of Food Biochemistry*. **43(7):** 12859.

United Nations (2019). The Multiple Benefits of Millets: Food Security, Nutrition, Health and Environmental Sustainability. Rome.

Yangilar, F. (2016). Production and evaluation of mineral and nutrient contents, chemical composition and sensory properties of ice creams fortified with laboratory-prepared peach fibre. *Food and Nutrition Research*. **60(10)**: 3402.