International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 09 Issue: 05 | May - 2025 SJIF Rating: 8.586 ISSN: 2582-3930

Development of Frozen Desserts

Ajay Durge[1] Prashant Watkar[2] Kiran Zode[3] Humayun syed[4] Bhineshwari naitam[5]

1,2 Assistant professor, Department Food Technology, BIT, Ballarpur, 442701

3,4,5Reasearch Scholar, Department Food Technology, BIT, Ballarpur,442701

ABSTRACT:-

Bread ice cream is an experimental dessert that fuses the comforting, nostalgic flavors of bread with the Creamy consistency of ice cream. By adding bread-based elements such as toasted crumbs, brioche, or sourdough to the ice cream base, the resulting Hybrid product has an intriguing contrast of textures and depth of flavor. The sweet, doughy undertones of bread are paired with the cold, smooth ice cream, Creating an unlikely but pleasant combination. The dessert blurs the lines of what is traditional about Frozen desserts, Providing a nostalgic but new spin on both ice cream and bakery products. The creation of bread ice cream necessarily raises questions regarding flavor fusion, balance of textures, and the potential for cross-category innovations in the food sector

KEYWORDS

Fresh Bread, Bread Crumps, sugar, milk, almonds, cashew, vanilla essence, custard powder.

INTRODUCTION:-

Frozen desserts are an old favorite in the culinary scene, and one of the most Popular among them is ice cream. Recent years, however, have witnessed renewed enthusiasm for new and Uncommon flavor pairings. One such product that has gained prominence is bread ice cream, an off-beat combination of Two apparently unrelated foods—bread and ice cream—unifying the familiarity of bread and The richness of frozen desserts.Bread ice cream is all about adding components of bread, including toasted bread crumbs, brioche, or even Handmade artisanal bread, to an ordinary base of ice cream.

The effect is a treat that provides both the smooth, creamy body of ice cream and the soft, bread-y essence of homemade bread. The combination not only provides an novel sensory sensation but also opens up new culinary avenues by combining the sweet and savory aspects of bread and the richness of ice cream The creation of bread ice cream is more than an inclination; it is an example of an increased trend to Redefine traditional food through new techniques and ingredients. The dessert blurs the Lines of traditional frozen desserts, pushing the limits of taste and feel to produce Something both nostalgic and new. With the food industry continuing to innovate through cross-category Creations, bread ice cream is an example of what happens when familiar elements are combined to Yield a new interpretation of an old favorite

MATERIAL AND METHODOLOGY

MATERIAL USED

Table : Material Used

Material	Weight
Bread crumps	100g
Milk	2 liter
Sugar	70g
Almond	40g
Cashew	20g

Vanilla essence	2 drop
Custard powder	10g
Milk powder	10g

Bread crumbs: Bread crumbs are:Small bits of bread, sometimes employed in recipes or sprinkled as a topping.On the computer, “breadcrumbs” are an aid to navigating the route to the present page**.**

Sugar: Suger is one of the carbohydrates that supply energy to the body. It occurs naturally in foods such as fruits, vegetables, and milk products. Added sugars, on the other hand, are the sugars which are put into foods during preparation or processing.

Milk: Milk is a nutritious liquid produced by mammary glands of female mammals, particularly cows, goats, and humans. It’s a rich source of:

Calcium: essential for bone health

Protein: supports muscle growth and repair

Vitamins: like D, B12, and others

Minerals: like phosphorus and potassium

Almonds / cashew are:

1. A type of tree nut

2. Rich in healthy fats, protein, and fiber

3. Good source of vitamins (like vitamin E) and minerals (like magnesium and potassium)

4. Often eaten as a snack, used in baking, or added to various dishes

Almonds offer potential health benefits, including:

1. Supporting heart health

2. Aiding in weight management

3. Providing antioxidants

Vanilla essence: .Vanilla essence, also known as vanilla extract, is a flavoring derived from vanilla beans. It’s commonly used in baking, cooking, and desserts to add a sweet, creamy, and aromatic flavor.

Vanilla essence can be:

1. Natural (from vanilla beans)

2. Artificial (synthetic vanilla flavor)

Milk powder: .Milk powder, also known as dried milk or powdered milk, is made by evaporating milk to remove the water content. It’s often used as a convenient alternative to fresh milk, offering:

1. Longer shelf life

2. Easy storage and transportation

3. Versatility in recipes

EQUIPMENT USE

Table : Equipment used

SR.NO	EQUIPMENT USED
1.	Weighing Machine
2.	Induction
3.	Mixer
4.	Ice-cream makers
5.	Freezer

1. Weighing Machine: Used for measuring ingredients accurately.

2. Induction: A type of cooking range that uses electromagnetic fields for heating.

3. Mixer: Used for mixing, whipping, or beating ingredients.

4. Ice-cream makers: Ice cream makers are appliances designed to churn and freeze ice cream mixtures into creamy, smooth treats.

1. Electric: Automatic churning and freezing

2. Manual: Hand-cranked, requiring more effort

Ice cream makers help:

1. Mix and aerate ingredients

2. Control temperature and texture

3. Create unique flavors and textures

5. Freezer: A freezer is an appliance that keeps food and other items at very low temperatures, typically below 0°C (32°F).

FLOWCHART OF FLATTENED CRISPY WAFER

Raw material
↓
Bread Crumps
↓
Grinding (crumps from)
↓
Added sugar, milk, almonds, cashew, vanilla essence, custard powder, milk powder
↓
Mixing all material
↓
Spreading and testing of end point
↓
moulding and cooling
↓
freezer -18 ,°C to -20°C Time 2-4 hours or overnight

and Packing

METHODOLOLY

Preparation of flattened rice wafers

Frozen Dessert's Proximate Composition was analyzed using Official Methods of Analysis

Mixing: Combine bread, milk, cream, and sweetener (such as condensed milk or sugar) and blend to smooth consistency. This step breaks bread into pieces and mixes all the ingredients together.

Spreading: Pour the mixture into an ice cream container or an ice cream maker. Use the manufacturer's guidelines for the ice cream maker. Otherwise, pour into a freezer-proof container.

Shaping: Because bread ice cream is usually frozen in a container, there is no actual shaping involved. It can then be scooped into cones or bowls once frozen.

Chilling: Refrigerate the mixture at -18°C to -20°C. This is the critical stage to obtain the desired consistency. It can be frozen for anywhere between 2-4 hours or overnight.

Packaging: After freezing, move the bread ice cream to air-tight containers or cones. This prevents freezer burn and ensures that the bread ice cream stays fresh.

RESULT AND DISCUSSION

1.Moisture Content

Moisture content was quantified by the Oven drying technique. About 5 grams of the sample were weighed (W2) on Preweighed petri plates (W1) and kept at 105º C in an oven for 3hours. The samples were then cooled in air-tight desiccators to Prevent the exchange of moisture with the air. The drying Was assumed to be complete when two consecutive weighments, an Hour apart, indicated variations of no greater than 5 mg. Moisture contentWas determined by finding the difference between the dried weight and the original sample Weight and expressing it as a percentage.As shown in table 5 the moisture content of Frozen Dessert was founded to be 35.66%

Estimation of Moisture Content

3gm sample was taken in a petri plate
↓
Weight was taken
↓
Dried in freezing -18°Ct to -20°C & 2-4 hours an overnight
↓
Cooled in a desiccator and constant weight was taken
↓
Moisture content was calculated by using the formula

2.Ash Content:

$$\text{Ash \%} = \frac{\textit{Weight of residue}}{\text{weight of sample}} \times 100$$

Estimation of Ash Content

Take 3 gm of flattened rice wafers in a crucible

↓
Ignit the sample in Muffle furnace at 550°C for 4 hours
↓
Cool it in the Dessicator for 15 mins and note the Constant Weight
↓
Calculate the ash content by using formula.

1. Estimation of Fat

5 gm sample was weighed and packed in a thimble the prepared thimble was weighed to Cross- check the weight of the sample. The thimble was then enclosed in a big cellulose Thimble and then it was placed in a Soxhlet extraction tube, 250 ml, of petroleum ether, Was added to the Soxhlet extraction tube containing the sample. The heating mantle was Turned on and the temperature was set at 60°C. Petroleum ether gets evaporated and Condensed and falls over the sample drop by drop and the speed of dropping should be 150 drops per minute. When clear color petroleum ether was seen in Soxhlet after 6-12 Hours, the assembly was turned off. The round bottom flask containing the solvent was Separated from the assembly to recover the solvent. The solvent was recollected by using The downward distillation unit for the next use and the round bottom flask holding the Extracted fat sample was dried in a hot air oven at 105 “C until all the solvent was Removed after drying the RBF was cooled in a desiccator and the weight was taken until The last three successive reading shows the difference less than 0.001 gm. A 5-gram Sample underwent initial weighing and was then enclosed within a thimble.Subsequently, the thimble, now containing the sample, underwent an additional Weighing to verify the sample’s weight. The thimble, housing the sample, was then Inserted into a larger Cellulose thimble. This combined setup was carefully positioned within a Soxhlet Extraction tube. To facilitate the extraction process, 250 ml of petroleum ether was Introduced into the Soxhlet extraction tube containing the sample. Upon activatingThe heating mantle and setting the temperature to 60°C, the petroleum etherUnderwent a cycle of evaporation, condensation, and dripping over the sample at aControlled rate of 150 drops per minute. Once the petroleum ether, now visibly clear,Was observed in the Soxhlet after 6-12 hours, the entire assembly was deactivated

Percent crude fat was calculated as under:

$$\%\text{Crude fat} = \frac{\text{Weight of Fat}}{\text{weight of sample}} \times 100$$

4.Estimation of Protein

The protein content of the samples was determined utilizing the Kjeldahl method. Initially, 2 grams of the sample underwent digestion with 5 grams of a digestion Mixture, comprising 10 parts potassium sulfate and 1 part copper sulfate, along with 20 ml of concentrated sulfuric acid. This digestion process continued in a Kjeldahl Flask until the contents achieved a state of being carbon-free. The resulting digested Sample was then adjusted to a final volume of 100 ml. A 10 ml aliquot of the Digested sample was subjected to distillation with 20 ml of 30 percent sodium Hydroxide. The liberated ammonia from this process was collected in a solution Containing 20 ml of 2 percent boric acid, enriched with 2-3 drops of a mixed Indicator. This indicator was a combination of 0.1% methyl red and 0.1% bromocresol green, dissolved in 95 percent ethyl alcohol, with a ratio of 1:5, respectively.The entrapped ammonia was subsequently titrated against 0.1N hydrochloric acid.The nitrogen content in the sample was then calculated using the following expression:

5.Estimation of Carbohydrate

The percent carbohydrates were calculated by subtracting the sum of moisture, protein, fat, ash and fiber from 100.

% CHO = 100 - (% Moisture + % Protein + % Fiber + % + Ash)

6. Shelf Life Study:

According to our research by doing sensory analysis we observe that the (Frozen Desserts) Bread ice-cream has a shelf life of 2 to 3 week at room temperature after 3 months we observe some changes in taste, texture, aroma and flavor.

So we observe that it's better to use before 3 week.

RESULT OF PROXIMATE AND PHYSIOLOGICAL ANALYSISPARAMETERS

Factors/ parameters (%)	Result
Moisture content	3.5%
Ash Content	2.5%
Crude Fat	7%
Crude Fiber	0.9%
Protein	8g
Carbohydrate	65%
Energy	326.9g
Calcium	15mg
Sodium	11.9mg
Sugar	0.5%

Table : Proximate analysis results table results

SENSORY ANALYSIS GRAPH OF PREPARED PRODUCT

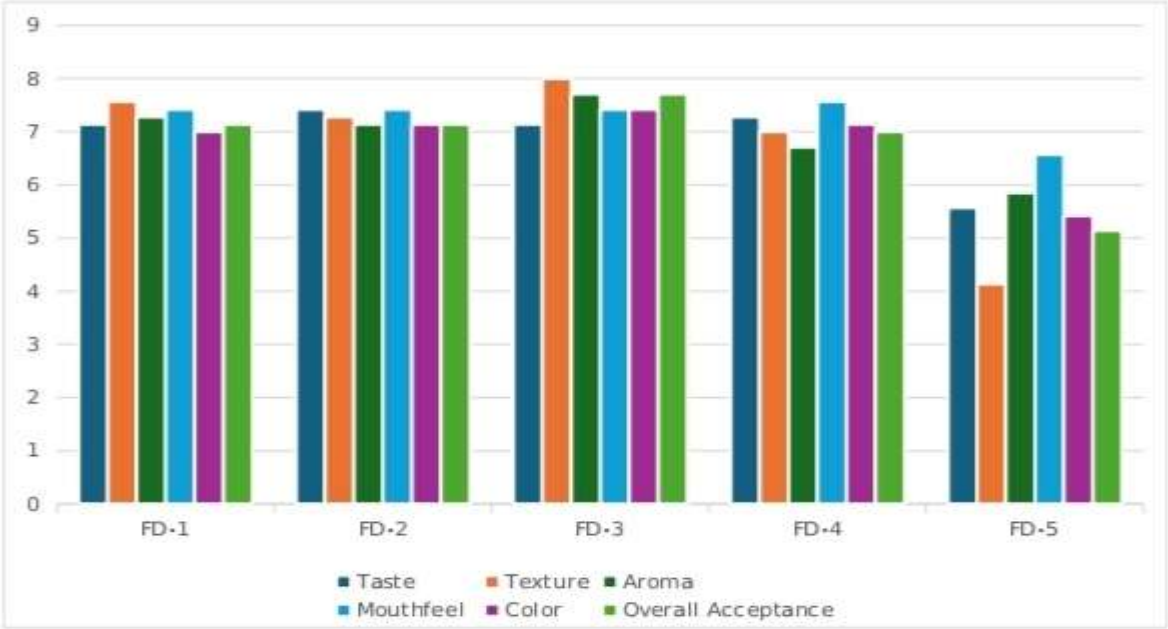
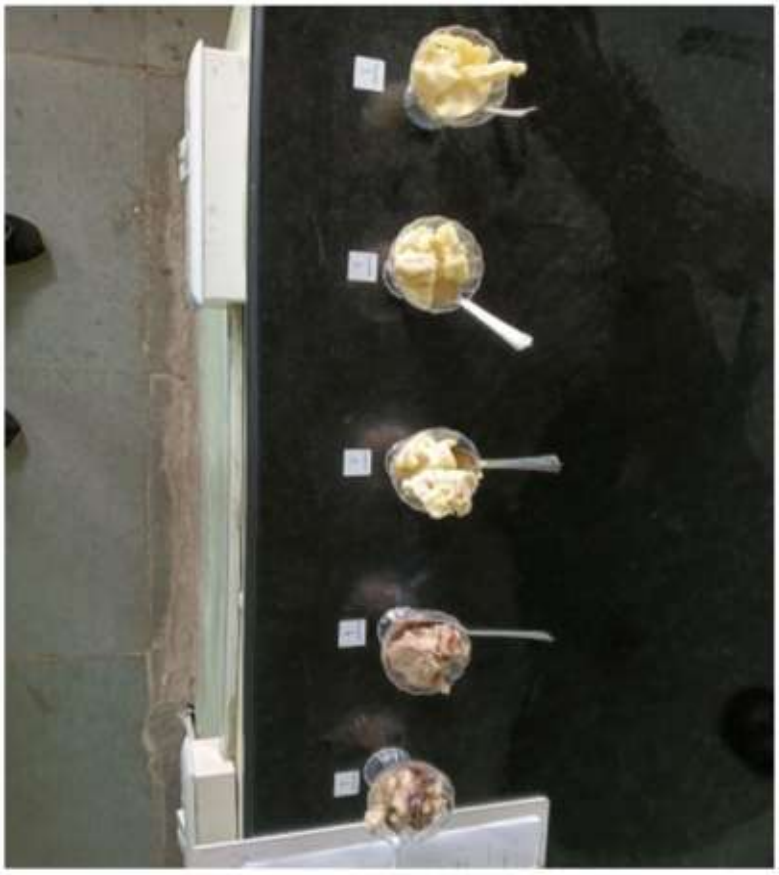


Figure : Sensory analysis graph of prepared Frozen desserts (Bread ice-cream)

FINAL PRODUCT

Figure : Flattened Rice Crispy Wafers



CONCLUSION

In conclusion, frozen dessert bread ice cream offers a unique and creative fusion of textures and flavors. By Combining the soft, dense nature of bread with the creamy, cold appeal of ice cream, this dessert creates an Enjoyable contrast between warm and cold, soft and firm. It is a versatile dish that can be customized with Different types of bread and ice cream flavors to suit various tastes. Whether enjoyed as a sweet treat or a Playful twist on traditional ice cream sandwiches, frozen dessert bread ice cream is an innovative way to Elevate both bread and ice cream into a delightful culinary experience.

REFERENCE

1. Lu, W. C., Cheng, Y. T., Chan, Y. J., & Li, P. H. (2022). Food safety assessments of acrylamide formation and characterizations of flaky rolls enriched with black rice (Oryza sativa). Frontiers in nutrition, 9, 1027800.

2. Hardacre, A. K., Clark, S. M., Riviere, S., Monro, J. A., & Hawkins, A. J. (2006). Some textural, sensory and nutritional properties of expanded snack food wafers made from corn, lentil and other ingredients. Journal of Texture studies, 37(1), 94-111.

3. Wefers, M. M., & Nelson, K. A. (1993). Programmable phase and amplitude femtosecond pulse shaping. Optics letters, 18(23), 2032-2034.

4. Wefers, A. K., Haberlandt, C., Tekin, N. B., Fedorov, D. A., Timmermann, A., van der Want, J. J., ... & Jabs, R. (2017). Synaptic input as a directional cue for migrating interneuron precursors. Development, 144(22), 4125-4136.

5. Huadong, Y., & Foophow, T. (2022). Characteristics of Flattened Rice Flour Used with Daifuku. Journal of Food Health and BioenvironmentalScience, 15(3), 1-9.

6. Preecharram, S., Posoongnoen, S., Thummawongsa, T., Sripakdee, T., Tawil, S., Poomsuk, N., & Jandaruang, J. (2023). Proximate composition and antioxidant activity of young flattened rice (Khao-Mao). Trends in Sciences, 20(4), 6575-6575.

7. Puhin, K., Fukuoka, M., & Ratanasumawong, S. (2021). Effect of starch and non-starch components on water migration, microstructure, starch retrogradation and texture of flat rice noodles made from different rice varieties. International Journal of Food Science & Technology, 56(7), 3344-3354.

8. Juliano, B. O., & Hicks, P. A. (1996). Rice functional properties and rice food products. Food Reviews International, 12(1), 71-103.

9. Mustapha, N. A., Tang, L. Y., Ibadullah, W. Z. W., Shukri, R., & Ibrahim,N. H. (2025). Microwave-and Oven-Heat Moisture Treatment of Broken Rice Flour and the Improvement in Flat Rice Noodle Quality. Journal of Advanced Research in Applied Sciences and Engineering Technology, 43(1), 33-44.

10. Tiefenbacher, K. F. (2017). The technology of wafers and waffles I: Operational aspects. Academic Press.