Development And Standardization of Red Rice Flakes Cookies

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Abstract- **Rice flakes cookies represent a fusion of tradition baking with the nutritional benefit of rice flakes. This abstract provides an overview of red rice flakes cookies, encompassing recipe variation, nutritional composition, and sensory attributes. Rice flakes cookies fortified with cassava and sorghum flour, offering a blend of nutritional diversity and culinary innovation. The resulting cookies provide a balanced macronutrient composition, with complex carbohydrate, healthy fats, and plant based proteins. Further research into recipe optimization and consumer acceptance could illuminate the broader application of these enriched red rice flakes cookies in the food industry.**

Key words: Red rice flakes cookies, Red sorghum, cassava flour, Butter, nutritive value

INTRODUCTION

Cookie is a baked or cooked food that is typically small, flat and sweet. It is usually containing flour, sugar and some of oil or fat. Cookies are often served with beverages such as milk, coffee or tea and sometimes "dunked", an approach which releases more flavour from confections by dissolving the sugars, while also softening their texture. Cookies are the most commonly baked until crisp or just long enough Journal h that they remain soft, but some kinds of cookies are not baked at all. Cookies are made in a wide variety of styles, using an array of ingredients including sugars, spices, chocolates, butter, peanut butter, nuts, or dried fruits. The softness of the cookie may depend on how long it is baked.
(N Srivastava, KC Yadav, K Verma, K Kishore, S Rout et al,.2015).
Red rice are rich source of health benefit- associated substance and can be conventionally cooked or developed into food products. Red rice flakes is a type of flattened rice that is commonly used in Indian cuisine. It is made by parboiling rice and then flattened it into thin, dry flakes using a rolling machine.
Red Sorghum is a local commodity that has the potential as an alternative ingredient to replace the use of wheat flour in food product. Food security can be accomplished by replacing wheat with sorghum, which is supported by sustainable agriculture. After wheat, rice, maize, and barley, sorghum is the fifth most widely grown cereal on the planet. Due to its high production, drought resistance, and heat tolerance, this crop is replacing maize in some areas. Sorghum is available in a variety of colours, including cream, lemon-yellow, red, and even black. (BD Rao, M Anis, K Kalpana, KV Sunooj, JV Patil- LWT- food science and..,2016-Elsevier)

OBJECTIVES:

- To develop cookies by combining the flours of red rice flakes, sorghum and cassava.
- To standardize a healthy nutritional red rice flakes cookies .
- To calculate the nutritive value of the red rice flakes cookies.
- To find out the shelf life of red rice flakes cookies.
- To find out the cost analysis of red rice flakes cookies.

METHODOLOGY

STANDARDIZATION
The process of making something conform to a standard. Standardization is a process of developing, promoting and possibly mandating standards-bases and compatible technology and processes within an industry. It focused to ensure quality, consistency and safety.

SELECTION OF RAW MATERIALS:
The red rice flakes, sorghum and cassava flour was brought from the organic store. It should be sound, undamaged and free from insects. The sugar and butter were from near by shop at chinnalapatti.
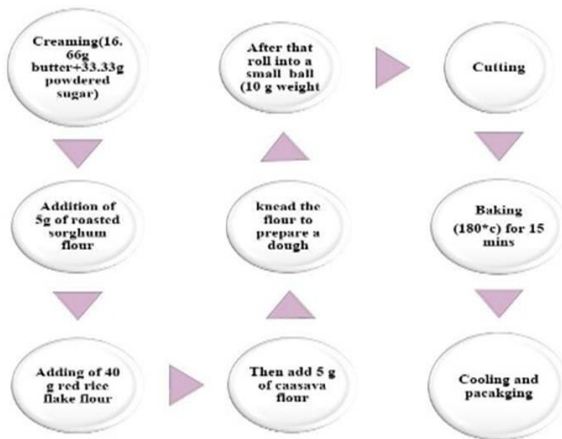
WORK PLAN FOR RED RICE FLAKES COOKIES:
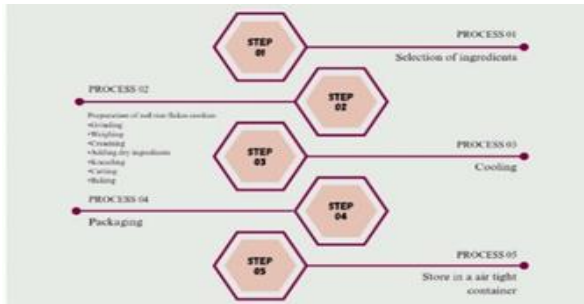
INGREDIENTS OF RED RICE FLAKES COOKIES

S.NO	INGREDIENTS	AMOUNT/100g
1	Butter	16.66 g
2	Powdered sugar	33.33 g
3	Red rice flakes flour	41 g
4	Red sorghum flour	5 g
5	Cassava flour	5 g

FLOW CHART FOR MAKING RED RICE FLAKES COOKIES:

PROCEDURE OF PREPARING RED RICE FLAKES COOKIES:

- The sorghum flour is slightly roasted for few minutes, until the raw flavour is off and keeps it in room temperature for cooling.
- Measure all the dry ingredients and keep it aside (red rice flakes flour, sorghum flour, cassava flour and powdered sugar).
- Whisk the butter until it become creamy texture, add powdered sugar and whisk them smoothly without any crystals in it, add sorghum flour and mix it well, then add cassava powder (as a binding agent for cookie).
- Finally add red rice flakes flour and knead it and place the cookies in the tray using cookie sheet.
- Preheat the oven for 180°c.
- Keep it in the oven for 15 minutes at 180 c.
- Then take the cookies out of the oven after It bakes and set it aside for a few minutes to cool it for the starch to get settled.

PACKAGING AND LABELLING OF RED RICE FLAKES COOKIES:

Packing material used for Red rice cookies was pvc plastic box.

Labelling materials used are recycled paper.

Labelling materials used are recycled paper.

CALCULATING NUTRITIVE VALUE OF RED RICE FLAKES COOKIES:

The nutrient content of the red rice flakes cookies was calculated from the STS laboratory, Madurai. The nutritive value such as energy, protein, fat, fibre, iron, carbohydrate were analyzed for red rice flakes cookies. The protein and fibre was enriched among other parameter.

SENSORY EVALUATION OF RED RICE FLAKES COOKIES

Red rice flakes cookies were used for evaluating sensory properties for various characterizes like appearances, taste, flavour, texture and to find out the acceptability of the product hedonic rating scale was used. The product was given to fifteen members and the points were rated based on their acceptability of the product. The sensory panel consist of staff and students of the Gandhigram rural institute-deemed to be university, Gandhigram. The entire panellists were considered average consumers of this product. The score card is appended in appendix, so sensory evaluation of developed and standardized rice flake cookies.

CHECK THE SHELFLIFE OF RED RICE FLAKES COOKIES

Check the shelf life of the developed red rice flakes cookies. The product will remain safe and retain the desired sensory, chemical, physical and microbiological characteristic.

COST ANALYSIS OF RED RICE FLAKES COOKIES

Cost analysis of red rice flakes cookies was determined. The cost collected for 100 g of red rice flakes cookies.

RESULT AND DISCUSSION

The result and discussion of the present study entitled "DEVELOPMENT AND STANDARDIZATION OF RED RICE FLAKES COOKIES" are discussed.

NUTRITIONAL VALUE OF RED RICE FLAKES COOKIES:

S.NO	Name of the samples	Result for 100 gm
1	Energy	491 kcal
2	Protein	9.8gm
3	Fat	25.6gm
4	Carbohydrates	55.3gm
5	Fibre	6.2gm
6	Iron	3.4mg

TABLE 2

The test method is done by FSSAI manual of methods.
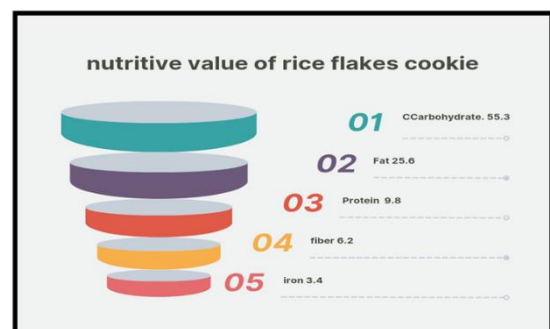
SENSORY EVALUTION OF RED RICE FLAKES COOKIES:

The result of sensory evaluation of cookies prepared with red rice flakes and sorghum were presented in the table 8 , were assessed a consumer acceptance was a desirable criterion for a product before launching it in the market.

Sensory evaluation of each sample was done is in term of colour, appearance, texture, flavour, taste and over all acceptability. The panel of untrained judges comprising of staffs and students of B.voc food processing and food testing and quality evaluation, the Gandhigram rural institute- deemed to be university, Gandhigram were selected to evaluate the products for sensory parameters. The samples were presented to judges. The average score was taken below.

Attributes	Excellent	Very good	Good	Poor	Very poor
Appearance	9	6	Nil	Nil	Nil
Taste	8	6	1	Nil	Nil
Colour	7	5	3	Nil	Nil
Flavour	11	3	1	Nil	Nil
Texture	12	3	Nil	Nil	Nil

TABLE 3

The Development and standardization of red rice flakes cookies. Sensory evaluation like appearance, taste, flavour, and colour were reported to be excellent and texture was reported to be very good. Hence, it could be concluded that red rice flakes cookies was excellent

SHELF LIFE ANALYSIS OF RED RICE FLAKES COOKIES:

S.NO	Name of the test	Result	Test method
1	Total plate count	$2×10^1$ CFU/gm	IS5402

TABLE 4

Thus, the from the above table 9, total plate count of red rice flakes cookies was found to be 2x CFU/gm . The present study indicates the shelf life of red rice flakes cookies was good.

COST ANALYSIS OF RED RICE FLAKES COOKIES:

S.NO	Ingredients	Cost (rs)
1	Red rice flakes	10
2	Red sorghum	0.8
3	Cassava flour	1.3
4	Powdered sugar	1
5	Butter	24
		Total =37.1

TABLE 5

The cost analysis of red rice flakes cookies wee determined

Thus, cost analysis for red rice flakes cookies was determined. The cost was calculated for 100gm of red rice flakes cookies were Rs.37.1 respectively.

Each cookies packet contains 10 cookies, each cookie price is Rs. 3.71.

Other expenses	Amount
Electricity (usage for weighing balance, light)	3
Manufacturing cost (cost of processing and employees charge)	6
Indirect manufacturing cost(rent for place and utensils)	4
GST	9
Total	22

TABLE 6

Then the cost value of red rice flakes cookies after adding the other expenses and GST, for 100gm of cookies is Rs.62 respectively. For each cookies the price is Rs.4.

SUMMARY AND CONCLUSION

SUMMARY

Red rice flakes and red sorghum is a good source of fibre and iron. The study believes that the regular or daily consumption of red rice flakes helps to increase the iron and fibre content in our body.

The present study on "DEVELOPMENT AND STANDARDIZATION OF RED RICE FLAKES COOKIES" was undertaken the objectives to prepare, conduct sensory evaluation and to calculated the nutritive value of red rice flakes cookies.

The summary of the study was discussed in the following headings.

NUTRITIVE VALUE OF RED RICE FLAKES COOKIES

The nutritive value of red rice flakes cookies was calculated as per the procedure in appendix. The

cookies provide 491kcal of energy, 9.8gm of protein, 25.6gm of fat, 55.3gm of carbohydrates, 6.2gm of fibre, 3.4gm of iron respectively. The formulated red rice flakes cookies provide a good nutritional and health to the consumers like children.

SENSORY EVALUATION OF RED RICE FLAKES COOKIES

The present study entitled development and standardization of red rice flakes cookies was undertaken to develop the red rice flakes cookies and the sensory evaluation was carried out and shelf life was also tested. The study showed that the sample score was higher. The overall acceptability of the product was good. The sensory evaluation was calculated using the 5 points hedonic rating scale given in appendix. The criteria which include appearance, taste, colour, texture and flavour and overall acceptability were checked. The overall acceptability of the red rice flakes cookies were satisfactory.

SHELF LIFE ANALYSIS OF RED RICE FLAKES COOKIES

The red rice flakes cookies were found to be safe till the period of days. Thus it can be concluded that the red rice flakes cookies can be stored up to 2 months without any deteriorative change in an air tight container.

COST ANALYSIS OF RED RICE FLAKES COOKIES

Cost analysis for red rice flakes cookies were determinate the cost was calculated for 100gm of red rice flakes cookies were Rs 37.1 respectively.

It is calculated that the development of red rice flakes cookies provide a good assistance as a red rice flakes and sorghum cookies for the people who suffer from nutritional deficiency disease.

CONCLUSION

The above study, it is clear that red rice flakes cookies are highly accepted by the panellists. The development of red rice flakes cookies provides a healthy and nutritive snack for mankind. Compared to other commercial cookies, a great alternative to traditional cookies, red rice flakes cookies are associated with a good source of dietary fibre and anti-aging. It has an impressive amount of iron and antioxidants. Red rice flakes cookies are a delicious and nutritious treat that can be enjoyed by people of all ages. Compared to other organic cookies (rate) red rice flake cookies (rate)is relatively low in cost and high in nutrient content.

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