

Cost analysis of dietary fibre enriched prebiotic biscuit

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Abstract

The main objective of this study was to developed low-cost dietary fibre enriched prebiotic biscuits. In this study, prebiotics were added in varying amounts to the experimental biscuits while being left out of the control biscuits. A prebiotic was used, oat powder. Customers' interest was piqued by the nutritive qualities of bakery goods and their potential for use in feeding programmes and crises. After analysis of cost, it was found that the mean value of cost of control (T₀) biscuit was 14.02 rupees and mean value of cost of experimental (T₁, T₂ and T₃) biscuit were 20.04 rupees, 23.02 rupees and 25.02 rupees respectively.

Keywords: Bakery products, biscuit, dietary fibre, cost, prebiotics, oats

Introduction

The most popular bakery item worldwide is the biscuit. They are unhealthy for everyday usage since they are lacking in fibre, vitamins, and minerals and rich in calories, fat, and carbs (Devi *et al.*, 2018) [1].

Biscuits are often made with a combination of wheat flour, oil, and sugar. A ready-to-eat food is a biscuit. Recently, biscuit technology has improved quickly to improve their nutritional value. The goal of this research was to find ways to improve the nutritional value of biscuits and any potential health benefits (Goubgou *et al.*, 2021) [2].

There are both primary and secondary ingredients in biscuits. Salt, an egg, an emulsifier, starter (sodium bicarbonate, ammonium bicarbonate), milk powder, and flavour spices are all optional secondary components. Water, sugar, fat/oil, and flour are the primary ingredients of these (Mancebo *et al.*, 2015) [3].

For this study, a high-dietary-fiber biscuit was created. Total dietary fibre is the part of a plant that withstands intestinal digestion in the human large intestine. Consuming a lot of total dietary fibre is associated with a decreased risk of prevalent diseases and disorders in contemporary civilisations since it has been shown to have beneficial effects on human health and physical function (Parveen, 2017) [6].

Aims and objectives

Keeping in view the above-mentioned importance of prebiotics, with health benefits of oats, a research study on "Cost analysis of dietary fibre enriched prebiotic biscuit" was carried out to developed low-cost dietary fibre enriched prebiotic newly prepared biscuit.

Materials and methods

The experiments related to "Cost analysis of dietary fibre enriched prebiotic biscuit" carried out in the research laboratory of Nutrition, Mahishadal Raj College, W.B., India.

Procurement of raw material

For preparation of biscuit, the raw ingredients like Oat powder, Wheat Flour, sugar, oil, Baking Powder were purchased from local market of Mahishadal.

Treatment combinations (Mondal *et al.*, 2022) [5].

T₀= Oats powder (0%): Wheat Flour (80 g) + Sugar (5 g) + Salt (0.90 gm) + Butter (5 g) +Water (10) Baking at 175⁰C for 15 Mins.

T₁= Oats powder (10 g): Wheat Flour (70 g) + Sugar (5 g) + Salt (0.90 gm) + Butter (5 g) +Water (10) Baking at 175⁰C for 15 Mins.

T₂= Oats powder (15g): Wheat Flour (65 g) + Sugar (5 g) + Salt (0.90 gm) + Butter (5 g) +Water (10) Baking at 175⁰C for 15 Mins.

T₃= Oats powder (20 g): Wheat Flour (60 g) + Sugar (5 g) + Salt (0.90 gm) + Butter (5 g) +Water (10) Baking at 175⁰C for 15 Mins.

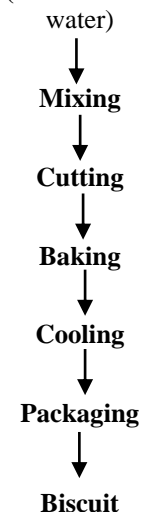
No. of Treatment: 4 +1 =5

No of replication: 03

Total no of trials: 15

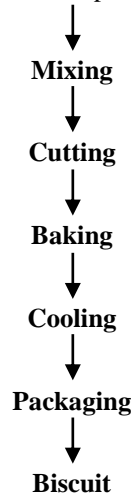
Flow chart for the preparation of biscuit (control biscuit) (Uchenna & Omolayo, 2017)

Ingredient weighing (Wheat Flour, sugar, salt, butter and water)



Flow chart for the preparation of biscuit (experimental biscuit) (Uchenna & Omolayo, 2017)

Ingredient weighing (Wheat Flour, oats powder, sugar, salt, butter and water)



Cost analysis

The cost of preparation as well as the cost of raw materials were added to analyse the final cost of control and experimental biscuits.

Result and discussion

Table 1: Cost Analysis of newly developed biscuit

Treatment combination	Raw material required for biscuit				Cost in RS				Total RS/100 gm
	Oats powder (gm)	Wheat Flour (gm)	Sugar (gm)	Fat (gm)	Oats powder (RS)	Wheat Flour (RS)	Sugar (RS)	Fat (RS)	
T0	00	80	05	05	00	4.0	0.2	10	14.02
T1	10	70	05	05	7	3.2	0.2	10	20.04
T2	15	65	20	05	10	3.0	0.2	10	23.02
T3	20	60	20	05	13	2.8	0.2	10	25.02

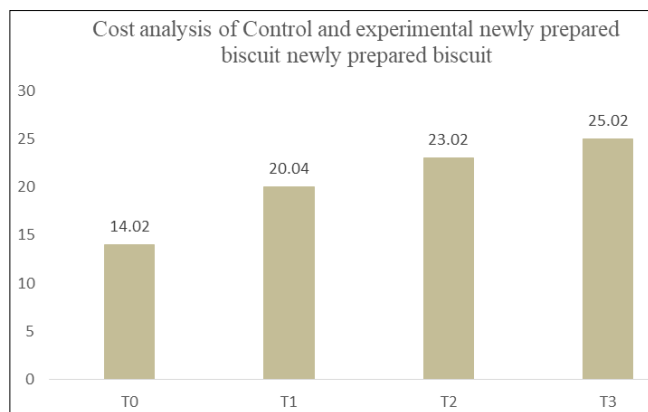


Fig 1: Graphical representation cost analysis of newly prepared biscuit

Conclusion

After analysis of cost, it was found that the cost of control biscuit (T0) was Rs. 14.02. The cost of experimental biscuits (T1, T2 and T3) were Rs. 20.04, 23.02 and 25.02 respectively. Following a cost analysis, it was also noted that there was not a significant cost difference between the experimental biscuits (T1, T2, and T3) and the control biscuits (T0). The increased cost of experimental biscuit was due to use of oats powder in different percentages that increases the dietary fibre percentages in experimental biscuit. That’s why experimental biscuit might be deemed socially acceptable.

References

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