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Studies on cost of production for value added nutritional bun with different levels of wheat flour, soy flour, water chestnut flour

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Abstract

Present study was to evaluate the objective of estimating the cost of production of bun prepared by wheat flour, soy flour and water chestnut powder. Cost benefit analysis is a systematic process for calculating and comparing benefits and cost of a project. A cost benefit analysis finds, quantifies, and adds all the positive factor's (the benefits). A total of four combinations of wheat flour, soy flour and water chestnut powder were prepared in five replication including one as a control and remaining four as experimental. The entire standard ingredients were purchased from local market. The result of the study revealed that the production of cost of controlled bun was lower Rs. (56.06/ Rs.) compared to multigrain powder mix bun Rs. (61.95/ Rs.) Which may be attributed to higher nutrient content of water chestnut, soy flour and wheat flour bun.

Keywords: Bun, cost, wheat flour, soy flour, water chestnut

Introduction

The bakery industry is probably the largest of the processed food industries in India with an annual turnover of about Rs. 5000 crores. It basically covers the production of breads, buns, pastries, cakes, rusks etc., and accounts for the consumption of about 30 lakh tons of wheat products (Kulakarni, 1997). Bakery products are important sources of nutrients viz. energy, protein, iron, calcium and several vitamins. Most bakery products can easily be enriched and fortified to meet the specific needs of the target groups and vulnerable sections of the populations who are undernourished Hall (1989) [2].

Multinational food industries, especially baking industries have responded well to the increased interest in nutrition and are developing products that meet the nutritional requirement and dietary recommendations of the consumers. Baking products especially bread form an important part of Indian dietary Kaushal (2002).

Soybean is rich in protein. It contains 32.4-50.2% protein. Oil content ranges from 13.9-23.2%. About one third of soybean consists of carbohydrates, including polysaccharides such as, stachyose (3.8%), raffinose (1.1%), sucrose (5%), phosphatides; sterols, ash and other are also as minor constituents. (Vaidehi *et al.* 1981) [6].

In developing countries like India, the problem of protein calorie malnutrition is a well-known phenomenon. This serious widespread problem of malnutrition can be eradicated by extensive scientific work and various attempts have been made by several workers on the field to enrich the diet of people with new food formulations using different protein sources. Soybean may become an ideal supplement because of its high protein fat content Melogorzata (2004) [3]. The soy protein enriched biscuits can be used effectively in child feeding programs and as supplement to the diets of the elderly and low income groups of the populations and generally recommended for making high protein biscuits (Ghatak *et al.*, 2007) [1].

Materials and Methods

The experimental work was carried out in the research laboratory of department of Dairy, Technology, Warner college of Dairy Technology, Sam Higginbottom university of Agriculture, Technology and Sciences Allahabad. Wheat flour and soy flour and water chestnut flour were obtained from the local market of Allahabad city. Bun was prepared by wheat flour and different levels of soy flour and water chestnut flour. Numbers of treatment were 4 which were replicated 5times.

Treatment Combination

T₀- Bun was prepared by blending of wheat flour.

T₁- Bun was prepared by blending 85% wheat flour + 5% soy flour + 10% water chestnut flour.

T₂- Bun was prepared by blending 80% wheat flour + 10% soy flour + 10% water chestnut flour.

T₃- Bun was prepared by blending 75% wheat flour + 15% soy flour + 10% water chestnut flour.

In order to prepare bun by wheat flour, water chestnut flour and soya flour were taken as per level and all the ingredients were mixed together. 2.5 % *Saccharomyces cerevisiae* was added and dough was prepared. Thereafter dough was incubated at 30 °C for a period of 1 hour. dough was then divided and shaped. Proofing was done 45 min. after then

dough was kept in baking oven for 300°C for 15 min. the prepared bun was then cooled. The final product was subjected to gross composition and sensory analysis. Number of treatments were four which were replicated five times. The cost of prepared was calculated at the prevailing prices of raw material purchased from the local market of Allahabad the data was analyzed statistically by using mean score.

Result and Discussion

The costs of the ingredients are very important factor besides other factors in determining the cost of production. It is considered as basis for price fixation and determines the profit. The price of the product is depending on the cost of the production. The cost of experimental bun was calculated, which is shown in the table below.

Table 1: Cost of Production for Mixed Flour Based Bun Prepared By Wheat Flour, Soy Flour & Water Chestnut Flour

Treatment	Wheat flour @24/kg	Soy flour @100/kg	Water chestnut Flour @110/ kg	Butter @350/kg	Salt @22/kg	SMP @360/kg	Sugar @40/kg	Yeast @300/kg	Overhead	Yield	Price/Kg
T ₀	1000gm/ 14.28 rs	-----	-----	50/10.4 rs	20/0.26 rs	20/4.30 rs	100/2.38 rs	25/4.44 rs	20	1680	56.06
T ₁	850gm/ 10.85 rs	50gm/ 2.65 rs	100gm/ 5.85 rs	50/9.30 rs	20/0.23 rs	20/3.82 rs	100/2.12 rs	25/3.96 rs	20	1880	58.78
T ₂	800gm/ 10.10 rs	100gm/ 5.26 rs	100gm/ 5.78 rs	50/9.20 rs	20/0.23 rs	20/3.78 rs	100/2.10 rs	25/3.94 rs	20	1900	60.39
T ₃	750gm/ 9.37 rs	150gm/ 7.81 rs	100gm/ 5.72 rs	50/9.11 rs	20/0.22 rs	20/3.74 rs	100/2.08 rs	25/3.90 rs	20	1920	61.95

Production cost of control bun was found Rs.56.06, whereas the experimental bun was started at Rs.58.78. The production cost ranged depending upon the price of the ingredients in experimental bun. It can also be observed that the highest mean cost (Rs.) was recorded in bun prepared by wheat flour and soy flour & water chestnut flour in sample of T₃Rs (61.95) followed by T₂ Rs (60.39), T₁ Rs (58.78), T₀ Rs (56.06).

Conclusion

It can be concluded from the above study protein content of different flour fortified bun increased in amount of protein and fiber. Soy food can help to reduce the risk of some types of cancer and prevent rickets' & other disease caused by calcium deficiency. The soy protein and water chestnut flour may become an ideal supplement because of its high protein fat content. The soy and water chestnut protein enriched bun can be used effectively in child feeding programs and as supplement to the diets. Thus the objective of this study is to incorporate wheat flour and soy flour and water chestnut flour to fortified bun and price of bun is very low as compared to market bun and it is very nutritional breakfast bakery product because it is rich source of protein fibers and carbohydrate.

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