



ISSN 2278 – 0211 (Online)

Formulation and Organoleptic Evaluation of Soymilk Fortified Food Products

V. Hemavathy

Professor, Department of Nutrition
Sree Balaji College of Nursing, Works Road, Chrompet, Chennai, India

D. Anitha

Department of Nutrition
Sree Balaji College of Nursing, Works Road, Chrompet, Chennai, India

Abstract:

In the present study, bakery products and milk shakes were selected to fortify with soy milk. These products are easily available and cost effective too. In fruit varieties apple, grapes and pomegranate were selected, because it goes well with soymilk blend, and without any curdling, it promotes good texture, taste and flavour. In case of bakery items bread, biscuit, cake were selected for fortifying with soy milk, it promotes better texture comparatively than other baked items such as buns, piecrust and puffs.

Keywords: Bakery Products-(A-Bread),(B-Biscuit),(C-Cake),Milkshakes Apple milkshake,A1-A5),(Grapes milk shake B1-B-5),(Pomegranate milkshake, C1-C-5), Organoleptic Evaluation

1. Introduction

Food is important for life to be healthy and active we should certainly have enough food. But the food we eat should also be safe and rich in all the nutrients our body needs(Agriculture and consumed protection Act,1990).Fortification is defined as the addition of nutrients that may or may not be naturally present in food, in order to increase the consumption of food(Kaushik,1999). Soymilk is a beverage made from soybeans originally from China (www.wikipedia.com,2007). Soymilk is an excellent source of plant protein with the potential to be used as substitutes for animal protein sources(Jain,2001). According to USFDA (2000), soy milk is an excellent source of good quality protein and compare well with other protein foods. It is a good source of calcium, iron, zinc, phosphate, magnesium, B vitamins and folate. Soy is a good source of protein for many vegetarians and vegans or for people who can't afford meat (Sofia,2000).For lactose intolerance individuals it can be a good source of replacement of dairy products(Henkel,2007).

2. Materials and Methods

2.1. Bakery Products

The preparation of standard samples (A-Bread- Biscuits-Cakes) and experimental samples such as (Bread,A1-A5) ,(Biscuits B1-B5),(Cakes,C1-C5) was carried out by the investigator, due to the cooperation of the workers.

2.2. Fruit Milk Shake

Fruit milkshakes was prepared by liquefying the whole fruit with minimum amount of water and milk (Manay, 2000).Fruit blended and pressing technique was adopted to prepare milkshakes. The standard samples (A-Apple milkshakes), (B-Grapes milkshakes),(C-Pomegranate milkshake), and experimental samples such as(Apple milkshake,A1-A5),(Grapes milk shake B1-B-5),(Pomegranate milkshake,C1-C-5) was prepared using pressing technique.

S. No	Bakery Products samples (Bread, Biscuits and cake)	Amount of soymilk used for fortification (ml)	Fruit milkshake shake samples(Apple, grapes and Pomegranate)	Amount of soymilk used for fortification (ml)
I	Standard sample A (Bread)	-	Standard sample A (Apple Milk Shake)	-
1	Experimental sample A1	100	Experimental sample A1	100
2	Experimental sample A2	150	Experimental sample A2	150
3	Experimental sample A3	200	Experimental sample A3	200
4	Experimental sample A4	250	Experimental sample A4	250
5	Experimental sample A5	300	Experimental sample A5	300
II.	Standard sample B (Biscuit)	-	Standard sample B (Grape Milk Shake)	-
1	Experimental sample B1	100	Experimental sample B1	100
2	Experimental sample B2	150	Experimental sample B2	150
3	Experimental sample B3	200	Experimental sample B3	200
4	Experimental sample B4	250	Experimental sample B4	250
5	Experimental sample B5	300	Experimental sample B5	300
III	Standard sample C (Cake)	-	Standard sample C (Pomegranate Milk Shake)	-
1	Experimental sample C1	100	Experimental sample C1	100
2	Experimental sample C2	150	Experimental sample C2	150
3	Experimental sample C3	200	Experimental sample C3	200
4	Experimental sample C4	250	Experimental sample C4	250
5	Experimental sample C5	300	Experimental sample C5	300

Table 1: Amount of soymilk used for fortification of bakery products and fruit milkshakes

- **Formulation and preparation of recipes** – Currently a number of bakers are using soymilk for up to 80 percent as a bread empower (American Soybean association, 2007).Soy milk was used in the preparation of cakes, results in good moisture, crumbness and better keeping qualities (Sharma, 2003).The additional of soymilk in cookies about 30-50 percent improves it dough softness and imparts a crisp and tender texture to the cookies (Stauffer,2002).
- **Organoleptic evaluation of recipes** - A score card is one which reflect the characteristic feature of the food product such as appearance, colour, taste and flavour(Geeravani,2004).
- **Selection of panel** - Physical conditions of the individual psychological factors and environment factors may affect one's judgement. Further, one individual may not be able to discriminate different aspects of the individual may not be able to discriminate different aspects of the food quality (Joshi-pura et al.,2000).The semi trained panellist of about 25 women graduates were selected as taste panellist, for organoleptic evaluation. Hence the acceptability of bakery items, standard items, standard samples such as (A-Bread),(B-Biscuit),(C-Cake) and experimental samples (A1-A5,-Bread),(B1-B5,-Biscuits),(C1-C5,-Cakes) and fruit milk shakes standard samples such as (A-Apple milk shake),(B-Grape milk shake),C-Pomegranate milk shake) and experimental samples such as (A1-A5,-Apple milk shake),(B1-B5,-Grape milk shake),(C1-C5,-Pomegranate milk shake), of groups were tested through organoleptic evaluation.

The organoleptic evaluation was conducted for the standard and experimental samples of bakery products and fruit milk shake using five point hedonic rating scale among 25 women graduates. Hence the food items were displayed in a neat, colourful jumbled manner. The results of the study were consolidated, tabulated and analyzed using mean and standard deviation.

3. Result and Discussion

Acceptability of the standard and experimental samples of bakery items and fruit milk shake was analyze and discussed below.

S. No	Bakery Products samples(Bread, Biscuits and cake)	Mean \pm S.D	Fruit milkshake shake samples(Apple, Sapota and Pomegranate)	Mean \pm S.D
I	Standard sample A (Bread)	19.05 \pm 2.15	Standard sample A (Apple Milk Shake)	18.70 \pm 3.34
1	Experimental sample A1	23.15 \pm 2.79	Experimental sample A1	19.40 \pm 3.26
2	Experimental sample A2	21.00 \pm 2.87	Experimental sample A2	19.45 \pm 3.30
3	Experimental sample A3	20.35 \pm 3.63	Experimental sample A3	19.00 \pm 4.43
4	Experimental sample A4	20.70 \pm 2.99	Experimental sample A4	18.30 \pm 4.62
5	Experimental sample A5	20.85 \pm 3.27	Experimental sample A5	18.89 \pm 4.59
II.	Standard sample B (Biscuit)	19.70 \pm 2.17	Standard sample B (Grape Milk Shake)	19.00 \pm 4.12
1	Experimental sample B1	20.70 \pm 2.93	Experimental sample B1	19.30 \pm 3.13
2	Experimental sample B2	22.85 \pm 2.90	Experimental sample B2	19.85 \pm 3.57
3	Experimental sample B3	20.80 \pm 3.40	Experimental sample B3	19.00 \pm 4.26
4	Experimental sample B4	20.30 \pm 3.81	Experimental sample B4	19.40 \pm 4.62
5	Experimental sample B5	20.25 \pm 4.85	Experimental sample B5	19.60 \pm 4.59
III	Standard sample C (Cake)	20.75 \pm 1.35	Standard sample C (Pomegranate Milk Shake)	18.70 \pm 3.75
1	Experimental sample C1	20.35 \pm 2.79	Experimental sample C1	19.05 \pm 3.04
2	Experimental sample C2	21.85 \pm 2.84	Experimental sample C2	20.65 \pm 3.60
3	Experimental sample C3	21.45 \pm 3.10	Experimental sample C3	18.80 \pm 4.52
4	Experimental sample C4	21.60 \pm 3.28	Experimental sample C4	18.80 \pm 4.97
5	Experimental sample C5	21.60 \pm 3.20	Experimental sample C5	18.60 \pm 5.28

Table 2: Effect of incorporation of soymilk on the overall acceptability of bakery products and milk shakes

- **Bakery Products** - Experimental sample A1 in Bread prepared using 100 ml soymilk is considered as best among others. It possesses high mean score than other samples. The high mean score 22.8 was obtained by experimental samples B2 in biscuits which was prepared using 125 ml of soy milk. In Cakes experimental sample C2 was considered as the best sample than other which was prepared using 120 ml of soy milk.
- **Fruit milkshake** – Experimental sample A2 in apple milkshake prepared using 150 ml of soy milk is considered as best among others. It possesses high mean score than other samples. The high mean score 19.8 was obtained by experimental sample B2 in grape milkshake which was prepared using 125 ml of soy milk. In Pomegranate milkshake experimental sample C2 was considered as the best sample than others which was prepared using 120 ml of soy milk.

We can suggest, awareness about the nutritional and health benefits of soy should be created in the community.

4. Summary and Conclusion

In Bread experimental sample A1 prepared using 100 ml of soymilk is considered as best among others samples. The high score 22.8 was obtained by experimental sample b2 in biscuits which was prepared using 125 ml of soymilk. In cakes experimental sample C2 was considered as the best sample than others which was prepared using 120 ml of milk. In apple milkshake experimental sample A2 prepared using 150 ml of soymilk is considered as best among others. The high mean score 19.8 was obtained by experimental sample B2 in grape milkshake which was prepared using 125 ml of soymilk. In Pomegranate milkshake experimental sample C2 was considered as the best sample than others which was prepared using 120 ml of soymilk.

5. References

1. Agriculture and consumer protection act, 1990, "Food and Healthy Living", www.food and beverages.com.
2. American soybean association, 2007, "Heart and stroke statistical update", www.health news.com.
3. Geeravani, 2000, "Formulation of score card", Journal of food technology, Vol.IV,238-252
4. Henkel, 2007, "International institute of tropical agriculture, Utilization of tofu from soy", 1-10
5. Jain, 2001 "Soymilk-a nutrient dense product", www.mama.com.
6. Joshipura, Radley, 2000, " Different methods for the conduction of organoleptic evaluation", www.google.com
7. Kaushik, 1999 "Definition for fortification", Journal of food technology, Vol III,1012-1030.
8. Manay, Savithri, Saradha, 2000. "Text book on food chemistry and experimental cookery", HR publishers and printers, 300-330

9. Sharma, and 2001, "Preservation and its uses", www.Preservation and its uses", www.Preservation.com.
10. Sofia, 2000 and Henkel, "Processing of Soyabean",
11. Stauffer, 2003, "Role of soy in healthy baking", Journal of American Soybean Association., 1191-1195.
12. USFDA, 2000 "Nutritional value of soymilk", www.talksoy.com.
13. www.wikipedia.com, 2007.