1st International e-Conference
on Novel Food Processing
(IECFP2013)

Feb 26-27
2013

ACECR
Food Science and Technology
Research Institute

Evaluation of the effect of grape concentrate instead invert syrup in soymilk pastille formulation an nutritional values and sensory properties

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Abstract—**Soy's products and their nutritional value have been studied by some researchers. In this study a new product(Soy milk pastille) was produced from soy milk, strawberry flavor, mixture of hydrocolloids, sweeteners, pH adjutants and other ingredients. First, type and levels of hydrocolloids, sweetener and production method were evaluated. Then, the effect of grape concentrate instead of invert sugar on nutritional values and sensory properties was studied. The results showed that overall acceptance of soy pastilles that content of grape concentrate decreased in despite of some good effects on nutritional values and sensory acceptability.**

Keywords-component; soy milk; pastille; nutrition; grape concentrate

I. INTRODUCTION

Natural snacks are more valuable and nutritional than others. Thus the formulations of these products have been considered in the last years [1].They can be produced easy to eat with high quality and attractive appearance. This action is positive manner to healthier of people especially children. The soybean is an exceptionally rich source of nutrients essential to the human diet. Soy bean is one of the excellent sources of high quality protein. Soy's products and their nutritional value have been studied by some researchers [2,3]. Soy milk is one of the soy's products that are some good qualities and functional properties such as high digestibility, lack of lactose and low cholesterol and fat, good source of protein and essential amino acids [4][5][6][7].

grape concentrate is a rich source of many important nutrients such as carbohydrate, minerals and iron that appear to have positive effects on human health. it is nutritionally important, especially for babies, children, sportsmen and in situations demanding urgent energy.

Concentrated grapes can use for different food industries like Bakery Industry , Confectionary industry , Snacks, Dairy industry, Spices in order to Increasing the shelf life, natural sweetener, nourishing agent A natural syrup for yogurts and ice cream, natural coloring agent, natural substitute for preservatives Concentrate grapes using as a sweetener instead of sucrose in the formulation of food products and have some advantages due to naturality, higher sweetness than sucrose (20%), fruity taste and polyphones components as antioxidant.

The aim of this study was production a novel product from soy milk with high nutritional values and acceptable consumers properties .

II. MATERIAL AND METHOD

Ingredients include soy milk, invert sugar(Bx = 68and pH =5 / 5), grape concentrate, strawberry concentrate, glucose powder, citric acid, agar(0223-65-CAT.QB), guar(4129G), pectin (9135P) with high degree of methoxyl, Gum arabic, Lecithin(471E), Sorbitol and emulsifie.

A. Formulation

Results of primary trials showed the 15 % sweetener, 50% soy milk, 0.26% hydrocolloid, 1.3% citric acid and 1.5% flavoring agent can be used for soy milk production. Independent variables were Arabic gum (0, 0.35 and 0.7 %) and lecithin (0.1 AND 0.3 %).The slurry were completely mixed and heated at 90°C. During making slurry, invert syrup were added until reaching 40 ° Brix . The final mixture was poured into a food grade mold with 2×2×1.2 cm dimensions, cooled to 25°C at ambient temperature and placed at 4°C for 2h (Fig. 1). Finally molded pastilles were dried at drier with hot air (70°C) for 5 hours.

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B. Measuring of the nutritional values

The fat, protein, total carbohydrates (based on glucose), total ash, fiber, vitamin C, iron (mg/ kg), calcium and humidity content with standard methods (Table I) were determined.

C. Sensory Evaluation

In this study the overall acceptance of samples with 10 trained panelists was done. Samples were evaluated using a scaling method of descriptive attributes for appearance, texture and overall acceptability (nine=heist and one= lowest value).

D. Statistical disiyn

Formulation of soy bean milk was produced in a completely randomized factorial arrangement and were analyzed by SPSS 11.5 software. Statistical comparisons of means at the 5% level in Duncan test was performed.

III. RESULTS AND DISCUSSION

A. Nutritional value

As shown in the table1 and 2, in the samples which contain invert sugar as sweetener, protein, carbohydrate and moisture was higher than grape concentrate substituted formulations, but the amounts of ash, vitamin C, iron and calcium were more in the last samples. Finally, total energy

B. Sensoryevaluation

As shown in the table 3, overall acceptance of the sample which contain invert sugar was significantly higher than the other substituted.

IV. CONCLUSION

The results showed that production of soy milk pastille as a novel and nutritious products because of naturality and especially amount of minerals, vitamins, fiber, high shelf life (moisture content 13 to 15%) and delicious can be accepted by a large group of people society. About type of sweetener, overall acceptance of soy pastilles that content of grape concentrate decreased in despite of some good effects on nutritional values and sensory acceptability.

Table1:Chemical gels invert sugar soy milk pastille

Characteristic	The amount of weight	Standard test method
FAT	1.63	2862
PROTEIN	4.25	2863
CARBOHDRATE	44.15	2303
ASH	1.27	92
FIBER	Indistinguishable	3105
		9266
	12.86	
Fe2+		5609
Ca2+	1042.21	AOAC.2005-35/985
Moisture		
Computational energy(kcal per 100 g)	13	
		672
	208.27	2078
VITAMIN C	13	5609

Table2:Chemical compounds containing the concentrate grape pastill soy milk

characteristic	The amount of weight	Standard test method
FAT	1.61	2862
PROTEIN	3	2863
CARBOHYDRATE	17.83	2303
ASH	1.35	92
FIBER	Indistinguishable	3105
Fe2+	13.55	5609
Ca2+	1171.52	9266
Moisture		
Computational energy(kcal per 100 g)	15	AOAC.2005-35/985
	97.81	
VITAMIN C	15	5609

Table3	Acceptance scores of soy milk	pastille with different sweetener
Formula	Sweetener	Overall Acceptance
1	Invert Syrup	7±0.3[a]
2	Grape Concentrate	6±0.2[b]

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Figure 1.   Samples of soy milk pastilles with of strawberry concentrate.as flavoring agent.