Original Research Article

Preparation of Burfi Blended With Green Peas

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A B S T R A C T

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Green peas, Khoa, textural properties, protein

The present study was carried out on "Utilization of green pea in preparation of burfi". The research was conducted in the laboratory of Department of Animal Husbandry and Dairy Science, College of Agriculture, VNMKV, Parbhani during the year 2015-16. Burfi was prepared from buffalo milk with constant level of sugar (30 per cent by weight of khoa) and different levels of green peas (2, 4, 6 and 8 per cent by weight of khoa). It was observed that the overall acceptability score for treatment T1, T2, T3 and T4 were 8.20, 7.50, 6.70 and 6.10 respectively. As the level of green peas in burfi increases the overall acceptability score decreases. The highest score for overall acceptability was found to be 8.20 for 5 parts green peas (like extremely) and lowest score was found to be 6.10 (like moderately to like very much for parts). On an average green peas burfi of treatment T1, T2, T3 and T4 contained moisture 17.76, 16.25, 16.65 and 16.41 per cent; fat 22.20, 21.730, 20.58 and 20.50 per cent; protein 15.00, 14.86, 14.35 and 14.04 per cent; ash 2.73, 2.65, 2.43 and 2.36 per cent; carbohydrate 43.55, 44.59, 45.50 and 46.10 and total solids 82.24, 83.75, 83.35 and 83.59 per cent, respectively. Burfi sample was evaluated for textural qualities viz., Hardness, cohesiveness, adhesiveness, springiness, gumminess and chewiness. Hardness, cohesiveness, adhesiveness, springiness, gumminess and chewiness of the treatment (T1) was 0.4730, 0.2098, 0.004, 15.090, 0.0992 and 1.4969 for treatment, T2 was 0.4780, 0.1316, 0.000, 15.210, 0.0629 and 0.9567, for treatment T3 was 0.4820, 0.1695, 0.000, 15.155, 0.0816 and 1.2366, and for treatment T4 was 0.5355, 0.1160, 0.000, 15.175, 0.0621 and 0.9423 respectively.

Introduction

Today's consumers are increasing with seeking functional foods for their health and well-being as means of nutritional intervention in disease prevention. Due to the today's upward consumer awareness and interest to follow healthy nutrition and dietary strategy in achieving health benefits from foods beyond their basic nutrition. The market for value added foods has expanded manifolds. In several past years, special attention has been paid to the increase the natural plant products contribution into

human diet because of physiological interaction of many bioactive substances occurring in them. Legumes are mostly annual species cultivated mainly for seed and green forage seeds are directly applied in human and animal nutrition. They are used in various food stuff and processing industry branches typically edible are; bean, pea, horse bean, soybean etc. To increase the consumption of these valuable plant raw materials, a wide range of genetic, agricultural and technological studies are

conducted in order to improve their nutritional values.

Green peas contain the special plant protein called lectins which plays a major role in dissolving clumps of red blood cells, which can otherwise become clots at later stages. The presence of the carotenoid, lutein has been proven to effectively reduce the risk of age-related muscular degeneration and cataract. Enriched with powerful antioxidants, vitamins A, C, and E. Green peas lower the chances of experiencing heart diseases and strokes, promote bone health and enhance the process of proper blood clotting. Regular consumption of green peas by pregnant women lowers the risk of natural birth defects due to the presence of the mineral foliate in abundance. Intake of iron-rich foods, including green peas, promotes proper blood cell formation, fights fatigue, and prevents the occurrence of anemia. Besides, iron is essential for transporting oxygen from the lungs to the rest of the body. A great source of dietary fiber, green peas helps with weight management and keeps the digestive health under control. Fiber is also known as a successful remedy for preventing constipation, lowering cholesterol levels, reducing cancer risk, and relieving other gastro-intestinal issues. Green peas have also been recommended for maintaining a healthy vision, stabilizing the levels of blood sugar in the body, boosting immune system, and increasing energy function in the body (Wikipedia.org).

Materials and Methods

Buffalo milk was obtained from buffalo unit maintained at Department of Animal Husbandry and Dairy Science College of Agriculture, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani. Milk was standardized to 6.0 per cent fat and 9 per cent SNF by Pearson's formula. Green peas were obtained from the local market of Parbhani.

Treatment combinations

T1 = 100 parts buffalo milk khoa by weight + 00 parts of green peas

T2 = 95 parts buffalo milk khoa by weight + 05 parts of green peas

T3= 92.5 parts buffalo milk khoa by weight + 7.5 parts of green peas

T4 = 90 parts buffalo milk khoa by weight + 10 parts of green peas

Flow diagram

Green peas burfi was prepared with standardized method separately for each treatment as shown in flow chart

Sensory evaluation

Sensory evaluation of ginger pedha was carried out by a panel of judges comprising"9 point Hedonic scale".

Chemical analysis of burfi blended with green peas

Moisture content of burfi was determined by standard procedure as described by (Anonymous, 1959). Protein content of burfi was determined by the Microkjeldahl method as described in ISI (1981), The total ash content of burfi sample was determined by method given by ISI: (1981), Carbohydrate content was estimated by subtraction method i.e. Carbohydrate = Total solids - (fat + protein + ash), Total solids were determined as per ISI 1479 (Part-II) 1961 procedure, textural properties were evaluated using the TA.XT plus

Texture analyzer of Stable Micro System equipped with 50 kg load cell.

Results and Discussion

Chemical composition

It was observed that the average moisture content ranged between 17.76 to 16.41 per cent in T1, T2, T3 and T4. It was also observed that maximum fat content was in T1 (22.20) and minimum fat content in T4 (20.50). It was observed that the protein content of the product ranged between 15.00 to 14.08 per cent for treatment T1 and T4. Ash content in treatments T1, T2, T3 and T4 were 2.73, 2.65, 2.43 and 2.36 per cent respectively. Carbohydrate content of product was found to be 43.55, 44.59, 45.50 and 46.01 per cent for treatment T1, T2, T3 and T4 respectively. Solids content of product was found to be 82.24, 83.75, 83.35 and 83.59 per cent for treatment T1, T2, T3 and T4 respectively.

Sensory evaluation of finished product

Sensory scores for colour and appearance for treatments T1, T2, T3 and T4 were 8.71, 8.15, 7.43 and 6.93 respectively. The colour and appearance score for T1 is higher (8.71) i.e. control sample than rest of treatments. The mean score for flavour for treatments T1, T2, T3 and T4 were 8.63, 7.88, 7.45 and 6.00 respectively. Average body and texture score of green peas burfi for treatment T1, T2, T3 and T4 were 8.88, 8.45, 7.38 and 6.93 respectively. Treatment T1 was scored the highest body and texture score (8.88) and the treatment T4 had lowest body and texture score (6.93). Overall acceptability for treatments T1, T2, T3 and T4 were 8.20, 7.50, 6.70 and 6.10 respectively. The maximum score (8.20) was obtained for the treatment T1 and the minimum score (6.10) was obtained for the treatment T4.

All the treatments showed the significant difference for moisture contents in green pea burfi. As green pea increased in burfi, the moisture content in burfi was decreased. This might be due to the less moisture content in green pea. The findings are close agreement with the reports of Thaware *et al.,* (2009), Kamble *et al.,* (2010) and Pawar (2011).

It was also observed that maximum fat content was in T1 (22.20) and minimum fat content in T4 (20.50). The fat content of burfi was significantly (P < 0.05) influenced by the addition of green pea. As the green peas level increases the fat content of burfi decreased significantly. Hajare (2011) reported as the preparation of almond in burfi increased the fat content in burfi also increases.

It was also observed that as the addition of green peas level increases the protein content of the product decreased. The results are in agreement with Matkar (2006) and Talekar (2013).

As the green peas level increases the ash content level of the product was also decreased. This might be due to the high content of mineral and high amount of total solids in burfi. The highest carbohydrate content was recorded for treatment T4 i.e. 46.01 and the lowest value was recorded for treatment T1 i.e. 43.55 per cent.

It was also observed that as the addition of green peas level increases the carbohydrate content in product increases.

The highest total solids content was recorded for treatment T2 and the lowest total solids content was recorded for treatment T1. All treatments were significantly (P < 0.05) differed from each other.
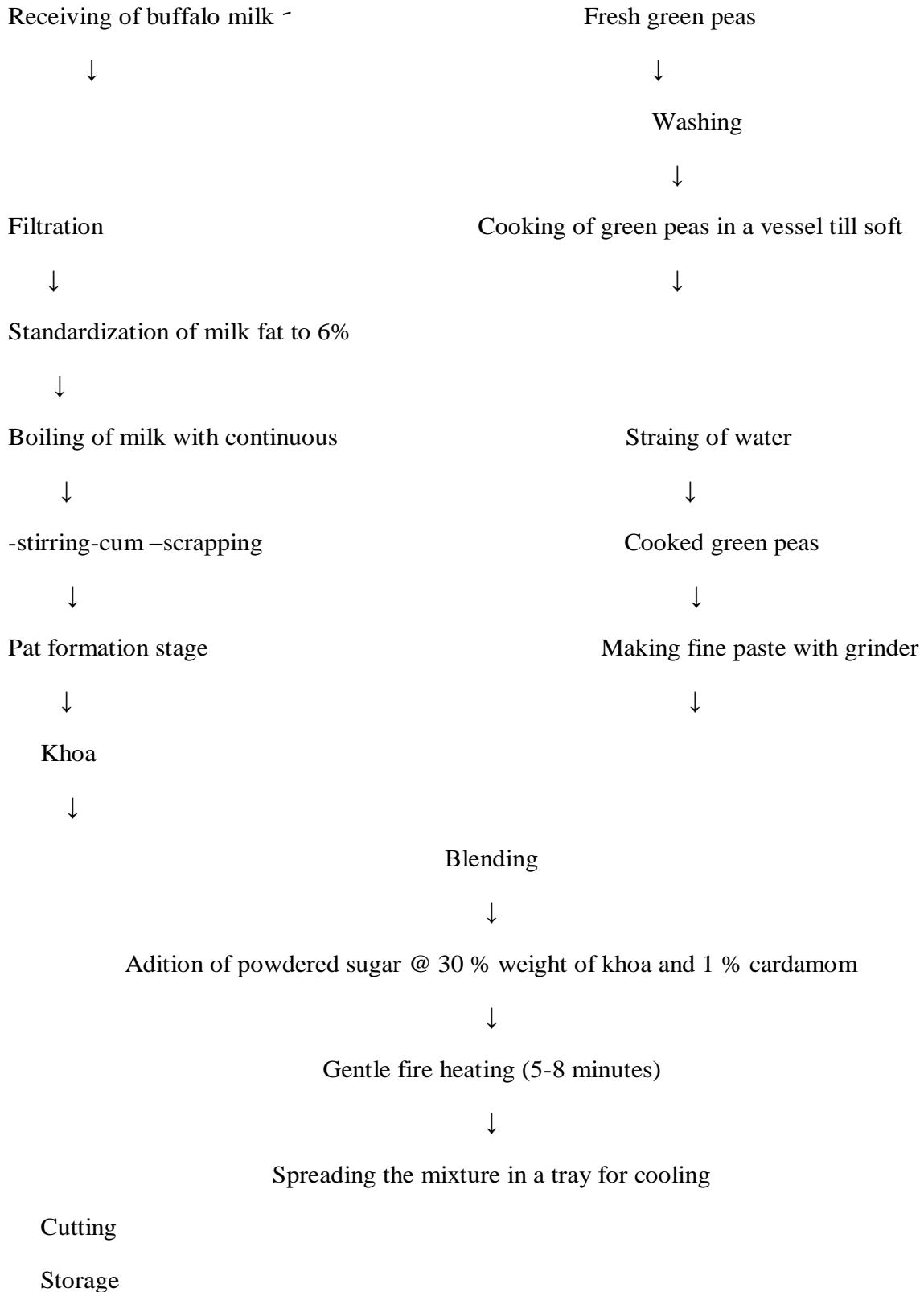
Flow diagram

Receiving of buffalo milk	Fresh green peas
↓	↓
	Washing
	↓
Filtration	Cooking of green peas in a vessel till soft
↓	↓
Standardization of milk fat to 6%	
↓	
Boiling of milk with continuous	Straing of water
↓	↓
-stirring-cum –scrapping	Cooked green peas
↓	↓
Pat formation stage	Making fine paste with grinder
↓	↓
Khoa	
↓	

Blending

↓

Adition of powdered sugar @ 30 % weight of khoa and 1 % cardamom

↓

Gentle fire heating (5-8 minutes)

↓

Spreading the mixture in a tray for cooling

Cutting

Storage

Table.1 Mean chemical composition of finished product

Replication → Treatment ↓	Moisture (%)	Fat (%)	Protein (%)	Carbohydrate (%)	Ash (%)	Total Solids (%)
T0	17.76	22.20	15.00	43.55	2.73	82.24
T1	16.25	21.30	14.86	44.59	2.65	83.75
T2	16.65	20.58	14.35	45.50	2.43	83.35
T3	16.41	20.50	14.08	46.10	2.36	83.59

Table.2 Mean sensory evaluation of finished product

Replication → Treatment ↓	Colour & apperance	Flavour	Body & Texture	Overall acceptability
T0	8.71	8.63	8.88	8.20
T1	8.15	7.88	8.45	7.50
T2	7.43	7.45	7.38	6.70
T3	6.93	6`00	6.93	6.10

It was also observed that as the addition of green pea level increases the total solids content of product increases. This might be due to the high total solids content of green peas.

The colour and appearance score of burfi was significantly influenced by the level of green peas, which is in agreement with the studies of Hajare (2011). Wakchaure (1998) who also reported that decline in colour and appearance score due to addition of almond, wood apple pulp and sapota pulp.

The flavour score of burfi was significantly influenced by the level of green pea. These results are in close agreement with the results obtained by Wackchaure (1998) who reported that the flavor score of burfi was influenced with addition of higher level of papaya pulp and sapota pulp.

The controlled burfi shows highest overall sensory score (8.20). T2 shows the highest acceptability in green peas utilizing burfi i.e. 7.50, which ranked as like moderately to like very much and lowest score was found for burfi utilizing with 10% green peas. Hence it is concluded that the burfi utilizing with 5% green peas is more nutrition and cheap for consumers. The chemical composition of burfi T2 contains moisture 16.25, fat 21.30, protein 14.86, ash 2.65, carbohydrate 44.59 and total solids 83.75 per cent. The hardness is directly relationship with moisture content of the burfi sample. The lower content of moisture per cent in burfi sample increases the hardness.

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