



Studies on Preparation Almond Milk Shake

Kuchekar, D.D., Narwade, S.G., Padghan, P.V. and Thombre, B.M.

Department of Animal Husbandry & Dairy Science,

Marathwada Agricultural University, Parbhani, 431 402 (M.S.) India

* Corresponding author e-mail : sachin_gaikwad.687@rediffmail.com

ABSTRACT

The proportion of milk shake from buffalo milk blended with different proportion of crushed almond 100:0 (T₀), 95:5 (T₁), 90:10 (T₂), 85:15 (T₃) was prepared and studied the physico-chemical composition. On an average the almond milk shake of treatment T₀, T₁, T₂ and T₃ contained acidity 0.16, 0.15, 0.15 and 0.14 per cent, fat 6.00, 6.77, 7.18 and 7.40 per cent, protein 4.02, 4.10, 4.23 and 4.44 per cent, ash 0.76, 1.05, 1.30 and 1.59 per cent, total solids 22.22, 23.50, 24.60 and 25.70 per cent and carbohydrate 11.44, 11.58, 11.89 and 12.27 per cent respectively. The titratable acidity was 0.61, 0.59, 0.59 and 0.57 per cent for the treatment T₀, T₁, T₂ and T₃ respectively.

Keywords: Almond, Buffalo milk, Sugar

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INTRODUCTION

Importance of milk in human nutrition has been universally recognized. Nutrition scientists and dieticians have recommended minimum level of milk and milk product to be included in the items of dairy consumption. Milk is one of the important commodities among the animal product with high nutritive value. It supply body building proteins, bone forming minerals and energy giving lactose and -milk fat. Milk components not only provide nutritional security but also are capable of providing potential health benefits in their various forms [2].

Milk shake is a western dairy product obtained by freezing a mix very similar to soft serve *ice cream* mix and speedy mixing the frozen product in a mixer to make it pourable and generate foam in it. It has lower fat and sugar contents and higher milk solids not fat (MSNF) content than *ice cream*. The *milk shake* that are commonly sold in the India subcontinent consist of sweetened cold milk added with colouring and flavouring agents without freezing but vigorously shaken. The most commonly used flavour blends are of rose, coffee and chocolate. It is sold by fruit juice centres in many parts of our country during the whole years. It is liked most by consumer as it is palatable and nutritional .

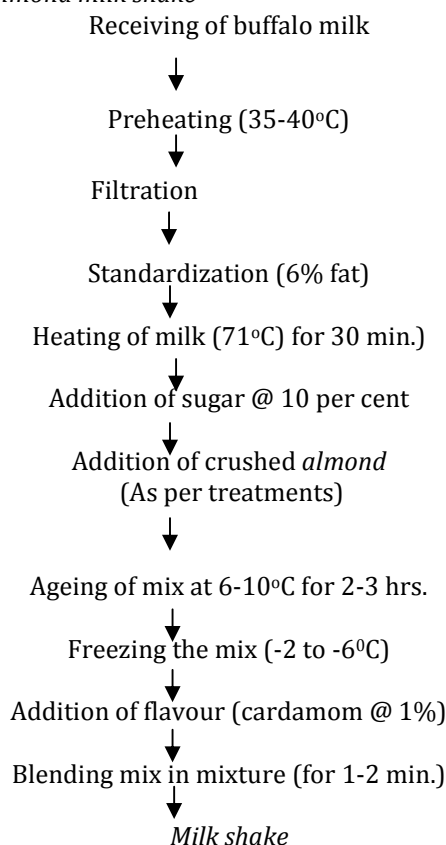
Several types of *milk shake* are sold in the market i.e. mango *milk shake*, sapota *milk shake*, fig *milk shake*, banana *milk shake*, almond *milk shake*, custard apple *milk shake* and the method of manufacture of *milk shake* varies from region to region. The base for all this type of *milk shake* is however milk and cane sugar in different proportion and other specific ingredient are incorporated to cater. The special taste, the *milk shake* shows wide variation in method of manufacture. Chemical, microbiological quality, packing and shelf life, No attempts have so far been made to formulate quality standard for this product. The paucity of adequate published information of *almond milk shake*, is the main constraint in determining the legal standard therefore it is an immediate need for standardizing suitable methodology for preparation *almond milk shake* so that the chemical quality of *almond milk shake* could become uniform.

MATERIAL AND METHODS

Preparation of almond milk shake

Almond milk shake was prepared by following the procedure as described by Sharma and Gupta [11] with slight modification. The measured quantity of buffalo milk was filtered through muslin cloth. The buffalo milk was standardized to 6 per cent fat. Milk was kept in karahi for heating and sugar was added @ 10, 15 and 20 per cent in to the milk crushed Almond was added @ 5, 10 and 15 parts. It was mixed well, kept in deep freezer and blended in mixer and *almond milk shake* was ready to serve.

Flow diagram of preparation of *almond milk shake*



Treatment details:

T ₀	=	Market <i>almond milk shake</i> (Control)
T ₁	=	5 parts crushed <i>almond</i> + 95 parts buffalo milk
T ₂	=	10 parts crushed <i>almond</i> + 90 parts buffalo milk
T ₃	=	15 parts crushed <i>almond</i> + 85 parts buffalo milk

Physico-chemical analysis of samples:

The *almond milk shake* samples from various treatment combinations were analyzed for fat [4], protein AOAC [1], ash [3], total solids [3] and carbohydrate was estimated by [5].

Statistical analysis

The data obtained were analyzed statistically by using completely randomized design as per the method prescribed by Panse and Sukhatme [10].

RESULTS AND DISCUSSION

Milk shake was prepared from buffalo milk blended with *almond*. The chemical composition of buffalo milk and *almond* used for preparation of *milk shake* is given in Table 1. It can be seen from table that acidity, fat, protein, carbohydrates, ash and total solids content of buffalo milk was higher than almond.

Table 1. Average chemical composition of buffalo milk and *almond* used for preparation of *milk shake*.

Treatments	Fat (%)	Protein (%)	Carbohydrate (%)	Ash (%)	Total solids (%)	Acidity (%)
Standardized buffalo milk	6.00	3.90	5.20	0.80	13.90	0.13
Almond	1.5	0.6	0.6	0.50	95	0.01

Composition of milk

Table 1 indicated that buffalo milk used for preparation of milk shake had fat 6.00, proteins 3.90, lactose 5.20, ash 0.80, total solids 13.90 per cent and acidity 0.13, whereas almond contained fat 1.5, proteins 0.6, carbohydrate 0.6, ash 0.50, total solids 95 per cent and acidity 0.01 per cent. Jinturkar [7] reported

chemical composition of buffalo milk fat 3.00, protein 3.03, carbohydrate 5.16, ash 0.76, total solids 11.95 per cent.

Physico-chemical analysis of finished product:

The *almond milk shake* prepared under study was subjected for chemical analysis viz. acidity, fat, protein, ash, total solids and carbohydrates.

It is observed from Table 2, the acidity content of *almond milk shake* of treatment (T₁) was highest (0.16) and that of (T₃) was lowest (0.14). There were non-significant differences in all treatment. This might due to the base material was milk was fresh in all the treatment combinations.

From the table 2 it is observed that the fat content of *almond milk shake* in all the treatment combinations was significant with each other. The fat content of treatment (T₃) was highest (7.40) and that of (T₀) was lowest (6.00). It might be to higher percentage of fat content in *almond*. The results obtained were comparable with results of Jadhav *et al.* [6] recorded the fat content in *sapota milk shake* as 3.41 to 4.13 per cent.

The protein content of treatment (T₃) was highest (4.44) and that of (T₀) was lowest (4.02). The non significant differences were in all the treatment. As the proportion of buffalo milk increased, the protein content in the finished product was increased because *almonds* contain less protein (4.02) as compared to buffalo milk. The results similar with the findings of Kashid [9] reported the protein content of golden milk shake from cow milk blended with safflower milk as 2.95 to 3.22 per cent.

The ash content was also found to be increased from 0.76 (T₀) to 1.59 (T₃) per cent. This increasing trend of ash content was due to blending of crushed *almonds* in increasing level. There were significant differences in all treatments. The results for ash content are in close agreement with those reported by Jadhav *et al.* [6] observed the ash content of *sapota milk shake* ranged in between 0.63 to 0.66 per cent.

The total solids content in T₃ was highest (25.70%) and lowest in T₀ (22.22%). There were non-significant differences in total solids content of *almond milk shake*. The results obtained accord with the results of Kadav [8]) prepared fruit flavoured *milk shake* with the fortification of pineapple syrup and jamun juice. He reported that the total solid content is varied from 23 to 34 per cent. The carbohydrate content of treatment (T₃) was highest (12.27) and that of T₀ was lowest (11.44). As the proportion of *almond* in the blended milk increased there was an increase in the carbohydrate content of *milk shake*. These results were in agreement with the findings of Jadhav *et al.* [6] observed the carbohydrate content of *sapota milk shake* as 13.27 to 18.67 per cent.

Table-2. Chemical composition of almond milk shake (per cent)

Treatments	Fat	Protein	Ash	TS	Carbohydrates
T ₀	6.00	4.02	0.76	22.22	11.44
T ₁	6.77	4.10	1.05	23.50	11.58
T ₂	7.18	4.23	1.30	24.60	11.89
T ₃	7.40	4.44	1.59	25.70	12.27
SE±	0.047	0.362	0.009	0.41	0.24
CD at 5%	0.14	1.11	0.028	1.28	0.074

CONCLUSION

It is concluded that the good quality *almond milk shake* can be prepared by addition of 5 per cent coconut milk in buffalo milk. The *almond milk shake* is very refreshing, high in nutritive value and was prized for its medicinal properties. *Almond milk shake* product would be more palatable and nutritive.

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