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Innovation The Research Concept

Study on The Variation in Yield and Quality of Chhana

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Abstract

The present study was carried out with the object of knowing the suitable coagulant strength and type of milk forgetting higher yield and better quality of chhana. It was concluded chhana prepared from cow milk by 0.2% strength of citric acid coagulant was better quality.

Keywords: Chhana, Milk, Citric Acid, Lemon Juice.

Introduction

The Annual milk production in India is about 187.7 million tonnes in, 2018-19 (Animal Husbandry Statistics, Directorate of Animal Husbandry Dairy and fisheries, Govt. of India), about 50-55 percent of the milk produced in the country is utilized for the production of Indigenous milk products. (Ammu et.al. 2020) Indigenous milk products have influenced the economic social and Nutritimal status of the people in the country.

According to F.S.S.R.(2011) chhana is the product obtained from cow milk and buffalo milk or combination there of by precipitation with cow milk,citric acid or lactic acid. It should contain not more than to 70 percent moisture and the milk fat content should not be less than 50 percent of the dry matter. About 6% of the total milk production in India is converted into chhana. (Sahu and Das 2007). Chhana is rich in fat and protein. It has got an immense food value from consumers point of view. It is also rich in fat sotuble vitamins (Dec 1983).

Aim of the Study

The present study was planned and carried out with the object of knowing the suitable coagulant, strength of coagulant and type of milk for getting higher yield and better quality of chhana.

Materials and Methods

To study the effect of different factors on yield and quality of chhana, 10 sample of milk from cow milk and buffalo milk were selected from individual milk producer in the morning milking for chhana making. The method of random sampling was employed in selection of milking animals for this purpose. All Animal selected for the study were normal health. A representative samples was taken in clean dry stainless steel container. The analysis of sample were done after 30 minutes of production. In laboratory before anaylsis, the sample of properly mixed and milk was analyzed for acidity, fat, total soilds, moisture, SNF, SNF: Fat ratio, Milk samples were analyzed from the methods recommended by A.O. A.C (1970). The average values of cow milk and buffalo milk used for chhana making i.e presented in Table 1 –

Table 1: Showing The Percentage Average Composition of Cow Milk and Buffalo Milk Used for Chhana Making

S.No.	Items	Cow Milk	Buffalo Milk
1.	Acidity %	0.13	0.14
2.	Fat %	4.58	5.46
3.	Total solids %	13.71	15.39
4.	Moisture %	86.29	84.61
5.	S.N.F %	9.13	9.93
6.	S.N.F: Fat Ratio	1.99	1.82

Two litre milk were kept in to utensil over a burning stove for warming. It was stirred after sometime. Half litre milk was taken in a beaker for one factor and kept one spirit lamp with wire gauge, when the milk attained the required temperature (80`C), then the coagulant was sprinkled over the surface and content were mixed by rotating the beaker, the coagulated milk was strained immediately through a muslin cloth, It was hanged for one hour and slight pressure was applied to remove the whey from Chhana. Thus the Chhana was prepared in different lots were kept in

covered glass bowl properly labeled. The prepared Chhana whey was tested and analyzed for the are following qualities as per recommended by A.O.A.C.(1970).

1. Yield of Chhana
2. Yield of Chhana whey
3. Fat loss in Chhana whey
4. Total solid % in Chhana
5. Moisture % in Chhana.

The Data were statistically analyzed by using 'T' test as recommended by Panse and Sukhat me (1985).

Results and Discussion

Effect of Type of Milk

The yield of Chhana prepared from cow milk was 13.21 percent and buffalo milk was 14.05 percent. The above values reveals that there was a narrow range of variation in the yield of Chhana prepared from cow milk and buffalo milk. It indicates that the difference in yield of Chhana prepared from cow milk and buffalo milk appeared to be non significant. The higher yield in Chhana from buffalo milk was probably due to higher total solids content in buffalo milk itself. The variation in yield of Chhana whey is statistically non significant. So it can be concluded that type of milk have no effect on the yield of chhana whey. The higher fat loss in whey found in buffalo milk whey that is the fat level in the milk. The total solids percent in cow milk was 45.78 percent but in buffalo milk was 56.12 percent. The difference in total solids percent was statistically significant. There was direct correlation between total solids % and yield of Chhana. Both values higher in buffalo milk. Moisture content in Chhana was indirect relationship with yield.

Effect of Type of Coagulants

There was practically no difference in yield of chhana prepared from two different coagulants. The average moisture percentage is higher in chhana preared from lemon juice as compared to chhana prepared from cirtic acid but this difference in moisture % is practically Non significant. There was a narrow range of variation in fat losses in different kind of whey.

Table 2 - Showing The Effect of Different Factor (Type of Milk, Type And Strength of Coagulants On Yield and Quality Of Chhana

S.No.	Factors	Yield of chhana (%)	Yield of chhana whey (%)	Fat loss in chhana whey (%)	Total Solids % of chhana	Moisture % Of chhana
A.	**Types of Milk**					
1.	Cow milk	13.21	79.84	0.48	45.78	54.22
2.	Buffalo milk chhana	14.05	78.18	0.90	56.12	43.68
B.	**Types of Coagulants**					
1.	Citric acid	13.47	78.48	0.60	51.83	48.17
2.	Lemon juice	13.79	79.54	0.78	50.07	49.03
C.	**Strength of Coagulants**					
1.	0.2% citric acid	13.67	78.52	0.65	50.78	49.22
2.	0.3% citric acid	13.28	78.44	0.56	52.82	47.12
3.	2.0% Lemon juice	13.94	79.52	0.79	49.63	50.37
4.	3.0% Lemon juice	13.64	79.56	0.77	50.50	49.50

This total solids was higher in chhana prepared from citric acid as compared in the product obtainted from lemon juice. The yield of chhana whey was slightly higher in lemon juice but statistically examination revealed the difference in significant.

Effect of Strenght of Coagulants

The yield of chhana was least effected by concentration of citric acid and lemon juice used for chhana making. Higher yield was recorded with lower concentration of coagulants in both citric acid and lemon juice. Same as reported in yield of chhana whey.Higher moisture % was present in chhana prepared from lower concentration of coagulants. A direct relation has been existed between total solids and strength of coagulants both with citric acid and lemon juice. Slightly more fat loss was noted in chhana whey prepared from 0.2% citric acid and 2% lemon juice coagulants used in chhana making as compared to 0.3% citric acid and 3% lemon juice. Banker, et. al.(2016) and Ammu et. al.(2020) also work done on chhana.

Conclusion

It can be concluded chhana prepared from cow milk by 0.2% strength of citric acid coagulants was better quality.

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