

CURD OR YOGURT MAKER

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Abstract - Yogurt or curd is one of the most important fermented milk products in India and have highly beneficial effects on human health. Yogurt or curd is one of the most important fermented milk products in India and have highly beneficial effects on human. There are microorganisms and they demonstrated to positive modulate the intestinal micro flora. The main aim was to study properties of curd and to make healthy curd. The curd is prepared by adding the starter like previous day curd, lemon, curd powder etc. The starter is mixed with the milk which is little bit hot up to 40 degree Celsius. The milk is kept in machine for 1-2 hour for curd production. Then the curd is stored in refrigerator and then it is ready to serve. The curd have so many health benefits and we can eat it daily. The curd has been strongly recommended for curing ailments like dyspepsia, dysentery and other gastrointestinal disorders in Ayurvedas

Key Words: Curd, Fermented, microorganisms, dyspepsia, dysentery gastrointestinal disorders , Ayurvedas

1.INTRODUCTION

curd is one of the most important fermented milk products in the Indian sub-continent and have been used since the time immemorial. The curd has been strongly recommended for curing ailments like dyspepsia, dysentery and other gastrointestinal disorders in Ayurvedas. This product is also believed to improve appetite and vitality. Some of the beneficial effects of curd are attributed to the antibacterial components formed during the fermentation, low pH that prevents the growth of putrefactive and other undesirable organisms including potential pathogens and increased digestibility.1-3 Curd is a good source of B vitamins, proteins, and calcium which are much easier for the body to digest than when they are present in fresh milk. The curd machine was specifically invented to improve the food standards. The machine can be used in other commercial sectors and also for domestic purposes. Our curd machine is designed to make the household curd in such a way that it fulfill the

requirements .This machine can make the curd in less time. The normal home process requires 8-9 hours for curd formation. Our aim is to make the curd in less time and in every season. This Curd machine is easy to handle and compact in size. This machine can make thick and tasty curd. The curd is helpful in prevention of colon cancer, lowering cholesterol, lowering blood pressure, improving immune functions, vitamin production and preventing infections.

2.WORKING

When supply is given to curd machine the heating element starts to heat. On the heating element a pot is placed in which milk is there with starter added in it .The temperature controller is used to maintain the temperature between 35 degree Celsius to 38 degrees Celsius. When the temperature drops below 35 degree Celsius the machine starts and when temperature rises above 38 degree Celsius the machine gets off. Timer is used for time setting and when we set the time and it gets over then machine will get off. After 2-3 hours the fresh curd will get ready to serve in any season

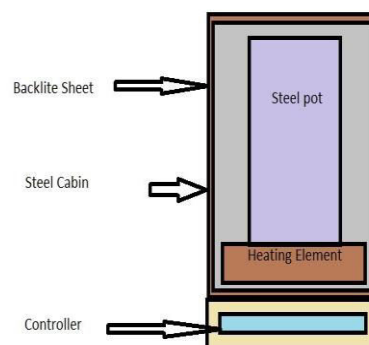


Fig. 2.1 Curd or Yogurt Maker

EXPERIMENTATION & TESTING

Experiment 1 By Regular Method

At first we boil the milk and cool down to room temperature. After that we add 2 tablespoon of old curd and mixed it well. After all this we put bowl of mixture at warm place.

Preparation time = 10 min.

Processing time = 5 & 5.30 hours. (mostly depend on seasons and temp. Around you. In summer season it will take less time to produce curd but in winter and monsoon it will take more time.)

Experiment 2 By Curd Maker

First of all boil the milk and cool down to room temp. We add 2 tablespoon of curd and mixed at well. After this we transferred the mixture in to curd maker. Then we set a timer to 2 hours. In 2 hours testy and thick curd was ready. Then we transfer it to the refrigerator. We experiment on full cream milk.

Preparation time = 10 min.

Processing time = Approximately 2 hours

TECHNICAL PROBLEM

Major challenges in preparation of curd and culture are to devise and develop technical apparatus and curd set procedures. There is an urgent need of a machine for accurate time-temperature control and system configurations with adjustable processing parameters. Presently, no specific mechanisms with these properties are available for the machines to conveniently operate and prepare fresh curd automatically. Therefore it is essential to design and develop an exclusive device.

TECHNICAL SOLUTION

The present invention provides a mechanism to economically (low cost) solve the above mentioned technical problem by providing an apparatus and a process for making fresh curd, and by consuming very low electrical energy. And having an automatic controller to maintain temperature inside the apparatus.

VARIOUS PARTS OF THE CURD MACHINE

Heating element :

For curd machine PTC heating element is used. PTC Heating element -- The PTC (Positive Temperature Coefficient) is a temperature sensitive semiconductor, which is made of doped polycrystalline ceramic on the basis of barium titanate. The resistance of these thermistor increases sharply when a defined temperature is reached. This property is the reason for the self-regulation characteristic, which the PTC heating elements make use of. The PTC (Positive Temperature Coefficient) is a temperature sensitive semiconductor, which is made of ceramic material. When the desired temperature gets then the temperature of thermistor increases. This property is used by the PTC heating element for the operation. Due to PTC heating element there is no additional safety product is required because it is so safe to handle. The PTC heating element is safe and it varies the temperature as per the requirement

Temperature Controller :

Temperature control is a process in which change of temperature of a space (and objects collectively there within), or of a substance, is measured. Otherwise detected, and the passage of heat energy into or out of the space. Substance is adjusted to achieve a desired temperature. We have used a temperature controller to control the desired temperature with maintaining the quality of curd.

Timer:

A timer type of clock used for measuring the time in installment. The timer has mainly two types. A timer which counts the time in upward measuring the time is called as stopwatch. The second one timer in which counts the time from downwards to a specific time is called as timer. In our machine we have used simple timer which will count the time as we need. In our machine simple timer is used to count and get automatically off when the time is up.

J type thermocouple sensor :

For our curd machine we have the J type thermocouple sensor. J type thermocouple is very common used thermocouple for applications. It consists of positive leg made of Iron wire and negative leg made of Constantan (Copper-Nickel) alloy. Type J thermocouple gives 1mV output for 18 degree Celsius. J type thermocouples are versatile and have widespread usage. The temperature range of J type thermocouple is from 0° to 750°C.

Insulation (Bacelite Sheet) :

It is also known as phenolic laminated sheets. It is double sided high pressure laminated. It is well known for electrical properties and mechanical strength. It is made by applying heat and pressure to paper, glass, cloth impregnated with phenolic resin. These layers of lamination usually of cellulose paper, cotton fabric, glass fabric

QUALITY CHECKING

The pH of milk is 6 . While that of curd is of the range 4.5-5.5.. This is because of the formation of lactic acid which is acidic in nature. The ideal pH for curd is 4.8.. For the curd the viscosity is the correlated parameter. For the curd production the texture, the viscosity and consistency of it is very important in manufacturing the curd. Acid development may be monitored by titrating the acidity of the incubating yogurt or by measuring pH. Curd machine pH level is about 4.6. The pH level varies between 4.4 to 4.8 depending upon type of milk

3. CONCLUSIONS

Curd is one of major indigenous fermented milk products, which is palatable, refreshing, and has characteristic taste which is liked by the people of all age group. People who are lactose intolerant can also consume these products, if not for their therapeutic quality but for the essential and satisfying nutrients required in a daily diet. In addition, it has also been recommended for replenishing the normal flora in the intestine after having heavy doses of antibiotics. Combining Yogurt or curd with the probiotics will be beneficial for human health. This will not only enhance the growth of beneficial microorganisms in the gut but also improve the gut health. The consumer's overall acceptability for the product was satisfying and also the pH and acidity was in normal range. The curd machine is able to make the curd in less time compared to regular method. The machine is so compact that can be taken anywhere .The cost of our curd machine is less which is affordable to everyone. In this machine we can make flavoured curd as you need. The machine can make the curd in less time that is about approximately 2 hours in every season.

RESULT

In regular method of making curd at home requires more time and it is seasonal time. In Summer time the curd get ready after 7 to 8 hours & in rainy and winter season it requires 10 to 11 hours to curd because it requires heat for fermentation and due to cool climate it consumes more time By this Curd making machine the curd will be ready in just 2-3 hours and in any season. It is compact in size and requires less energy to ferment the milk into curd. The heading should be treated as a 3rd level heading and should not be assigned a number.

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