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iASK

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STIRRED YOGURT “WEEPS” NO MORE

The use of stabilizer pectin reduces syneresis or “weeping” and improves the consistency of stirred yogurt.

Yogurt is one of the most popular cultured milk products that uses *Streptococcus* subsp. *thermophilus* and *Lactobacillus delbrueckii* subsp. *bulgaricus*, which are micro-organisms that help in yogurt-making. Set yogurt is a type of yogurt, which is poured into containers and incubated without further stirring; while stirred yogurt is one that is agitated after incubation to develop a smooth and viscous texture.

Syneresis is the separation of whey that is common in cultured products such as yogurt, making the yogurt appear to “weep” or become watery. There are many factors that may lead to syneresis. It may be due to low protein or fat content, insufficient heat treatment, too high incubation temperature, low acidity, and/or disturbance of coagulum during incubation and cooling.

In stirred yogurt, significant syneresis implies a poor product. The stirring or agitation of the formed coagulum after incubation would immediately exhibit separation of whey. Further stirring would break down the lumps and will result in a smoother and viscous product.

Most manufacturers use stabilizers such as pectin, gelatin, and starch in order to prevent “weeping” or syneresis. It also helps improve or retain the properties of yogurt in terms of texture, mouthfeel and viscosity or consistency.

Problem

Syneresis (“weeping”) or whey separation makes stirred yogurt less desirable to consumers.



with hot water and about 10 percent of raw milk. Add the final mixture to the rest of the milk and mix until well combined.

Use of Stabilizer. Pectin is the most effective stabilizer to use in acidic products such as yogurt. For effective results, swelling of pectin is done for 10-30 minutes before heat treatment.

Pasteurize. Heat the milk mixture to 90-95°C for five minutes using a double boiler with continuous stirring. This is to destroy unwanted microorganisms in milk.

Cool. Immediately cool the milk to 43°C after pasteurization. This is the optimum temperature that allows the growth of the starter culture.

Ferment/incubate. After cooling, add the starter culture immediately, mix it well, and cover securely. Leave overnight at room temperature or incubate at 43-45°C until it reaches pH 4.6-4.8.

Incubation temperature. Fermentation converts lactose into lactic acid, which reduces the pH of milk. The lower the fermentation temperature used, the lower the chance of syneresis. However, a bit higher temperature could be used during the initial stages of fermentation to facilitate faster growth of the starter culture.

Add flavor. After fermentation, mix the yogurt until smooth and add flavor.



Solution

Prepare and combine raw materials. Measure the respective quantities based on the formulation of stirred yogurt. Combine pectin and sugar and blend well. Dissolve the mixture in water and leave for 10-30 minutes. Add the mixture and other dry ingredients and pre-mix



Pack. Pour into sanitized bottles and seal caps tightly. Wash any spillage on bottles.



Store. Refrigerate at 0-4°C after packing to reduce further acid development.



Results

Syneresis is reduced and the consistency of stirred yogurt is improved by using pectin.

Lesson Learned

When using pectin, ensure that it is dissolved completely. Also, strictly follow the incubation temperature to prevent syneresis.

Keywords: stirred yogurt, syneresis, pectin



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ABOUT THE MATERIAL

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