**5.02 Yogurt Making Lab**

**Background**

The word yogurt comes from Turkey and refers to a tart, thick milk. The origin of yogurt is not singular, however. It can be found in nearly every culture that kept animals for milk. It was likely discovered in similar ways in each region.

When fresh milk is left in a container with friendly bacteria, the milk thickens and develops a delicious sour taste. The lactic acid produced by the fermentation process also acts as a preservative, helping the cultured milk stay fresh longer.

Around 1900, scientists started studying and isolating the bacteria that made yogurt. Soon after, they were able to combine selected strains that would culture reliably for commercial creameries. These blends are called direct-set cultures.

With no starter to maintain, direct-set starters made it possible for a company to consistently make the same yogurt with each batch.

In 1981, the [FDA](http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=131.200) defined fresh, prepared yogurt in the United States and stated that it must include Lactobacillus bulgaricusand Streptococcus thermophilus. These strains are found in all of our direct-set starters

**Procedure**

1. Prepare your saucepan (high walls) and a whisk.
2. Ensure all these utensils are thoroughly washed with warm water and soap and they are dry before you make the yogurt.
3. To make yogurt, pour 1.2 liters of fresh, pasteurized milk (whole, skim, or partial skim) into a high walled saucepan.
4. Heat the milk until it boils (82C), for 1 to 2 minutes and starts to climb the side of the saucepan.
5. Remove the saucepan from the heat and allow the milk to cool to lukewarm (43C).
6. Stir in 5 g of yogurt starter mix into the milk. Whisk in until dissolved.
7. Mix until very smooth.
8. Pour the mixture into the seven jars.
9. Place the jars, without the white lids into the yogurt maker.
10. Cover the yogurt maker with its clear cover.
11. Turn on.
12. 00 should display on the LCD display. Press SET and choose 7 hours for whole milk, 9 hours for 2% milk, and 10 hours for skim milk.

**Purpose:**

**Notes on Lab:**

1. Did anything strange happen?
2. Do you think your group made any errors? If so, were they corrected?

**Data:**

1. Describe the consistency of your yogurt.
2. What percentage of milkfat did you use?
3. How does the color deviate from your original milk?
4. Describe the flavor, aroma, and texture of your yogurt and the other types of yogurt.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Whole milk | 2% milk | Skim milk |
| Flavor |  |  |  |
| Aroma |  |  |  |
| Texture |  |  |  |
| Consistency |  |  |  |

**Answer these questions:**

1. How is this process an example of fermentation?
2. What organisms are used in this process to make yogurt?
3. How does your yogurt compare to another group’s yogurt with a lower or higher fat content?
4. Why would the yogurt maker take different times for different percentages of milk fat content?
5. How can you make yogurt without a yogurt maker?
6. If your yogurt did no turn out, what do you think went wrong?



Describe this comic to a kindergarten student. Help this comic to make sense to a child. Put your explanation in this box.