

Cheesemaking and Fermentation

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Outcomes. Make yogurt

Materials & inputs: milk, jars, cultures

Depending on how much yogurt you will have students make, you will need either one or two pints of milk per student.

The milk must NOT be UHT (Ultra High Temperature) pasteurized. If it is, some proteins will have denatured and it will not make good product.

Starter culture. This can be packets from New England Cheesemaking company or in the form of store-bought yogurt. If it is the later, please get plain yogurt – this will have fewer stabilizers and preservatives and you will get better results.

Pint jars one or two per student

Heat source: I use \$20 electric heat units.

Heating containers or pans: I use small 2 quart double boilers, but these are a bit pricey (\$65 ea) and they take a long time to reach the desired temperature, and then they ‘overshoot’ and get too hot. I have students use a metal bowl (from lesson one) and set their pint jar full of milk in the bowl of heating water. See the separate “heating options” handout.

Thermometer: You will need thermometers for this course that can be accidentally completely immersed in milk. Students don’t wash them very carefully either and often submerge them in soapy water. Every year expect about 10% of the thermometers to be dropped or quit functioning.



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Methods: Step by step

Heat milk slowly to 180 degrees.

Cool the milk by setting the container of milk in a sink or bowl of cold water.

Cool the milk down to 110 degrees.

Add the starter culture. If it is powdered culture, then sprinkle the culture over the surface of the milk. Let the culture become wetted by the milk while it is on the surface. After it is wetted, a minute or two later, then stir it in. This helps prevent clumping of the culture.

Incubate. Try to hold the temperature of the inoculated milk at between 105-110 degrees for at least **six hours**. See the lecture for ideas for incubation chambers. Incubation allows the desirable bacteria to grow and multiply. As they grow, they feed on the milk sugar (lactose) and convert it to lactic acid. The acid causes the milk proteins to precipitate out of solution and become solids. This is called coagulation or clabbering. It is the same process as curd formation in cheese.

Incubation methods will vary. In some classrooms, the instructor may incubate everyone's yogurt together in a warm temperature chamber. It is much more fun to invent your own incubation chamber. Take notes on how quickly or slowly your milk turns into yogurt.

Don't expect your yogurt to become quite as thick as store-bought yogurt. They add thickening agents.

It's OK to leave your yogurt incubating over-night or even for a full day. Remember, it won't spoil or be unsafe since it is overloaded with awesome, healthy bacteria.

Eat it or Store it. After the yogurt has solidified, refrigerate it. Add your favorite fruits (strawberries, raspberries, peaches) and maybe a little sugar to your yogurt. Eat it within about 2 weeks. Your yogurt may last longer than that in the fridge, but smell it and taste it before consuming if it is over 2 weeks old.

