Oh Soy Good!

Ice cream in a bag

Standard Operating Procedure #1102

Laboratory: Biotechnology
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Location: Food Science Lab
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General: Is ice cream a complete food? Does it contain macromolecules that our cells need? What are the most common types of milk available globally? Which type of milk is a good alternative for cultures that do not have proper refrigeration?

Safety: Safety glasses

Materials
½ cup of milk types (Soy, oat, Bovine, almond, etc.)
4 cups Ice
½ teaspoon Vanilla
4 tablespoons Salt
1 tablespoon Sugar
Quart Size bags w/sealable tops
Gallon Size bags w/sealable tops
Temperature probe

Procedure
1. Pour the _____mL of milk sample into a quart size bag.

2. Measure the initial temperature of the milk sample using temperature probe and record in data table.

3. Add_____mL of vanilla, and _____ g of sugar to the quart size bag, with the milk sample.

4. Seal bag, squeezing out as much air as possible.

5. Pour _____mL of ice into the gallon size bag and then add _____g of salt on top of the ice.

6. Place the sealed quart size bag containing the milk solution in the gallon size bag containing the ice and salt mixture.

7. Seal, squeezing out as much air as possible.

8. Shake the gallon bag until milk solution in the quart size bag is frozen, about 5-10 minutes.

9. Use a temperature probe to measure the final temperature of the frozen milk sample and record in data table.

10. Use the following equation to calculate the freezing point depression:
Final Temperature – Initial Temperature = Δ T f (change in freezing point)

11. Repeat steps 1-10 with other milk samples assigned per instructor.