Oh Soy Good!

Ice Cream in a Bag

Standard Laboratory Operating Procedure #1101

Laboratory: Biotechnology	Location: Food Science Lab
SOP prepared by: R. Sanders	Last Revision: 4/25/22

Is ice cream a complete food? Does it contain macromolecules that our cells need? Is soymilk a good alternative for people with lactose allergy? 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 if working in a Food Science Lab

Materials

½ cup (120 ml) milk variety

4 cups (960 ml) Ice

½ teaspoon (2.5 ml) Vanilla

4 tablespoons (60 g) Salt

1 tablespoon (15 g) Sugar

Quart (1L) Zip-loc bag

Gallon (4L) Zip-loc bag

Temperature probe

Scale

Procedure

1. Pour 120mL of milk into a quart size bag, using temperature probe measure the initial temperature of the milk sample and record in data table.
2. Add 2.5 mL of vanilla, and 15g of sugar in the quart size bag, with the milk sample.
3. Seal bag, squeezing out as much air as possible.
4. Pour 960mL of ice into the gallon size bag and then add 60g of salt on top of the ice.
5. Place the sealed quart size bag containing the milk solution in the gallon size bag containing the ice and salt mixture.
6. Seal, squeezing out as much air as possible.
7. Shake the gallon bag until milk solution in the quart size bag is frozen, about 5-10 minutes.
8. Use a temperature probe to measure the final temperature of the frozen milk sample and record in data table.
9. Use the following equation to calculate the freezing point depression:

   Final Temperature – Initial Temperature = Δ Tf (change in freezing point)