



Homemade Yogurt Lab

Purpose	To prepare a fermented dairy product.			
Scientific Explanation	Culture is added to warm milk transforming the lactose in milk to lactic acid by the process of fermentation giving the product a tart flavor and thick texture.			
Equipment		Supplies		
Wide-mouth thermos	Fresh milk * 1 c./ kitchen unit			
Double boiler	Evaporated milk- 1/2 c.			
Wire whisk	Nonfat dry milk powder-2 Tbsp./unit			
Instant read thermometer	Ice cubes			
Blender	Unflavored (Knox) gelatin- 1/2 tsp./unit			
Rubber scraper	Plain yogurt with live cultures			
Glass custard cup				
Wooden or plastic spoon				
Procedure				
1. Wash wide mouth thermos-rinse well with cold water-fill with HOT tap water ; set aside.				
2. Fill bottom pan of <i>double boiler</i> 1/3 full of cold tap water ; set aside.				
3. In top pan of double boiler, whisk together 1 c. milk - chart below and 2 Tbsp. nonfat dry milk powder .				
Kitchen 1	Kitchen 2	Kitchen 3	Kitchen 4	Kitchen 5
Skim milk	1 % milk	2% milk	Whole	1/2 c. evaporated + 1/2 c. water
4. Place top of double boiler over bottom half; place on burner on med-high heat. Whisk occasionally, heat until milk becomes frothy and reaches 165 degrees F. on <i>instant read thermometer</i> . Remove pan from heat; remove top pan from bottom and set aside on counter.				
5. Drain hot water from bottom of double boiler pan. Fill with cold tap water and add 1/2 c. ice cubes . Replace top pan over the bottom pan; top pan should touch the water. Allow milk in top pan to cool to 115 degrees on instant read thermometer. Check temperature every 5 minutes recording on data table on next page. While milk cools; complete step 6.				
6. Sprinkle: 1/2 tsp. unflavored gelatin over 2 Tbsp. cold water in a <i>glass custard cup</i> . Let stand for 3 minutes until all water is absorbed and translucent. Add 1/4 c. HOT tap water to <i>blender</i> container. Scrape in soaked gelatin with <i>rubber scraper</i> . Process on HIGH speed on blender until gelatin is dissolved. Add 2 Tbsp. plain yogurt ; process 1 min.				
7. Add yogurt/gelatin mixture to COOLED milk . Stir with wooden or plastic spoon-not metal. Drain water from thermos. Pour in yogurt mixture. Cover tightly with lid. Let stand undisturbed for 12-24 hours. Remove from thermos –chill in refrigerator.				



Homemade Yogurt Lab Sheet

Time & Temperature Data Table

Time	5 mins.	10 mins.	15 mins.	20 mins.
Temperature				

Sensory Evaluation Table **

Variety	Texture	Thickness	Flavor	TOTAL
Skim milk				
1 % milk				
2 % milk				
Whole milk				
Evaporated milk				

Ratings	5	4	3	2	1
<i>Texture</i>	Smooth & creamy	Smooth	Slightly grainy	Grainy	Gritty
<i>Thickness</i>	Very thick	Thick	Medium	Thin	Watery
<i>Flavor</i>	Slightly sweet	Tangy	Slightly Tart	Tart	Very Sour

**Adapted from: “Yummy Yogurt” exploring Science in Food Labs, pg. 117. Goodheart-Willcox Publisher, 2000.

Process Questions

1. Which yogurt had the best overall ratings?
2. What effect if any did the fat content of the milk have on the texture and thickness of the yogurt?
3. How did the fat content of the milk affect the flavor of the yogurt?