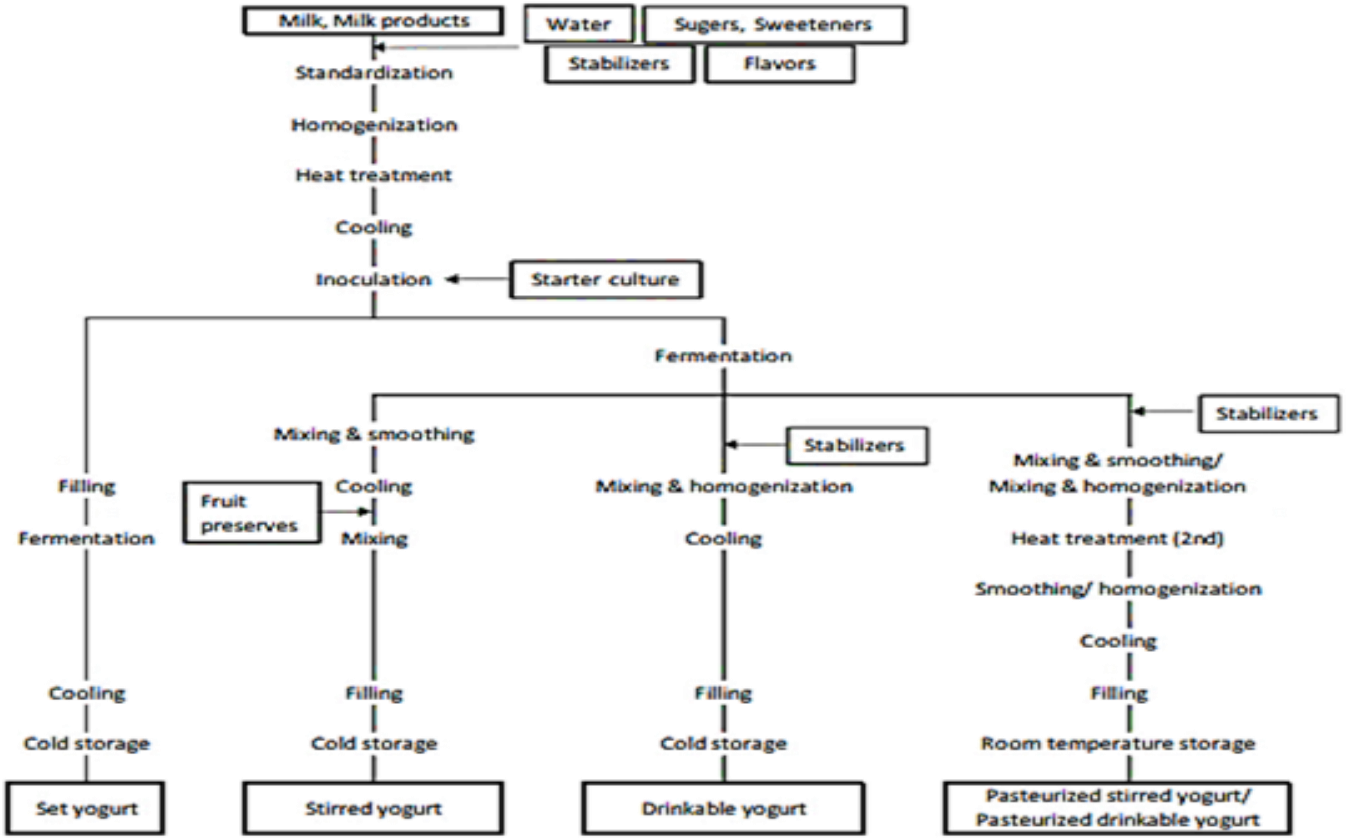
YOGURT



1. **Milk Preparation and Standardization**: adjusting fat and solids content to ensure uniform product quality. Additional ingredients such as water, sugar, sweeteners, stabilizers, and flavors can be added depending on the desired yogurt type.
2. **Homogenization** to ensure even fat distribution and **Heat Treatment** (usually around 85°C for 15–30 minutes) to denature whey proteins, improve texture, and eliminate most microorganisms.
3. **Cooling and Inoculation**: milk is **cooled to 42–45°C** before being inoculated with a starter culture containing *Lactobacillus delbrueckii* subsp. *bulgaricus* and *Streptococcus thermophilus*.
4. **Fermentation and Product Differentiation**
    - For **set yogurt**, fermentation occurs directly in the retail containers without agitation. After fermentation, the product is cooled and stored at 4°C.
    - For **stirred yogurt**, fermentation takes place in tanks. Once coagulation is complete, the curd is stirred to obtain a smooth texture, sometimes combined with **fruit preserves**, and then cooled, filled, and stored.
    - **Drinkable yogurt** undergoes post-fermentation homogenization to reduce viscosity, followed by cooling and packaging.
    - **Pasteurized stirred or drinkable yogurt** is produced by reheating the fermented yogurt (post-treatment) to extend shelf life and allow room-temperature storage.
5. **Storage**: Each product is filled into containers and either stored under refrigeration (for fermented yogurts) or at ambient temperature (for pasteurized yogurts).

Set yogurt (firm texture in the cup)

- Standardization & Homogenization: Adjust milk composition and break fat globules.
- Heat treatment: 85 °C for 20–30 min (or 90–95 °C for 5 min) to kill pathogens and denature whey proteins (improves gel).
- Cooling: Bring mix to incubation temperature (40–43 °C).
- Inoculation: Add starter culture (*S. thermophilus* + *L. bulgaricus*).
- Filling: Milk is poured into final cups before fermentation.
- Fermentation: Keep at 40–43 °C until pH ~4.6 (acidity 0.8%)
- Cooling & storage: Refrigerate at 5 °C → final set yog


SET YOGURT


STIRRED YOGURT

Stirred yogurt (softer texture, often with fruits)

- Same steps as set yogurt until inoculation.
- Fermentation: Incubated in bulk tanks (not in cups).
- Mixing & smoothing: The curd is broken by stirring to give a creamy texture.
- Cooling: Immediately cooled to 10–25 °C.
- Additives: Fruits, sugar, sweeteners, flavors, stabilizers may be mixed in.
- Filling & storage: Filled into cups, then stored at 5 °C.

Drinkable yogurt

- Same steps as stirred yogurt up to smoothing.
- Stabilizers added (e.g., pectin, CMC) → prevent whey separation (syneresis).
- Homogenization: 10–20 MPa to reduce viscosity to a liquid form.
- Cooling & filling: Immediately cooled, then bottled.
- Cold storage: Refrigerated at 5 °C.

Pasteurized stirred yogurt

- Follows stirred yogurt process initially.
- Pasteurization (second heat treatment): 75–110 °C for 2–20 s → kills lactic acid bacteria.
- Stabilizers & thickeners: Added to maintain texture (pectin, gelatin, starch).
- Homogenization/smoothing: To avoid clumps.
- Cooling & filling: Packed aseptically at 10–25 °C.