REPORT ON VISIT OF

AMUL DAIRY RAJKOT

DUDHSAGAR RD, NEAR NEW POWER HOUSE, GEB PGVCL, RAJKOT, GUJARAT 360003

:: ORGANISED BY ::

Department of Community Medicine
Rajkot Homoeopathic Medical College
Parul University

(A. Y. 2020-2022)

PLACE OF VISIT

Amul Dairy - Rajkot
Dudhsagar Rd, near NEW POWER HOUSE, GEB PGVCL,
Rajkot, Gujarat 360003

DATE OF VISIT

19th & 20th July 2021

AIMS OF VISIT

- To understand the role of industrial unit in collection, processing and distribution of milk and milk derived food articles.
- To understand the methods and process of pasteurization of milk at industry level.

WHAT IS PASTEURIZATION OF MILK?

- Pasteurization of milk is a process of heating the milk to such temperatures and for such periods of time as are required for destroy any pathogen that may be present while causing minimal changes in the
- (a) composition,
- (b) flavour and
- (c) nutritive value.

METHODS OF PASTEURIZATION OF MILK

- High Temperature Short Time (HTST) : This method involves using metal plates and hot water to raise the temperature of the milk to at least 161 °F (71 °C) for no less than 15 seconds, or 145 °F (62 °C) for 30 minutes, followed by rapid cooling.
- Higher Heat Shorter Time (HHST) : Similar to HTST pasteurization, Higher Heat Shorter Time (HHST) uses slightly different equipment and higher temperatures for a shorter time. Using HHST, milk can be heated anywhere from 191 °F (89 °C) – 212 °F (100 °C) for its specified time (see chart below).
- Ultra High Temperature (UHT) : This process involves heating the milk using commercially sterile equipment and filling it under aseptic conditions into hermetically sealed packaging. The milk must be heated to 280 °F (138 °C) for at least two seconds, then rapidly cooling it down. UHT kills more bacteria (good and bad) and gives it a much longer shelf life. UHT milk does not need refrigeration, until opened, and is shelf stable for at least six months.
- Ultra Pasteurized (UP) : Not to be confused with UHT, Ultra Pasteurized (UP) milk is heated using commercially sterile equipment, but it is not considered sterile because it is not hermetically sealed. Milk is heated to 280 °F (138 °C) for at least two seconds, then rapidly cooling it down. Since the milk is not hermetically sealed, it must be refrigerated with an average shelf life of 30 – 90 days.

MILKBORNE DISEASES

- A Joint FAO/WHO Expert Committee (1970) on Milk Hygiene classified milkborne diseases as under :

(a) Infections of animals that can be transmitted to man

-Primary importance
Tuberculosis
Brucellosis
Streptococcal Infections
Staphylococcal enterotoxin poisoning Salmonellosis
Q fever

-Lesser importance
Cow-pox
Foot and mouth disease
Anthrax
Leptospirosis
Tick-borne encephalitis.

(b) Infections primary to man that can be transmitted through milk:

Typhoid and paratyphoid fevers
Shigellosis Cholera
Non-diarrhoeal diseases
- Streptococcal infections
- Staphylococcal food
- Diphtheria
- Tuberculosis
- Enterovinises
- Viral hepatitis

TESTS OF PASTEURIZED MILK

(1) Phosphatase test: This test is widely used to check the efficiency of pasteurization. The test is based on the fact that raw milk contains an enzyme called phosphatase which is destroyed on heating at a temperature which corresponds closely with the standard time and temperature required for pasteurization. At 60 deg C for 30 minutes phosphatase is completely destroyed. Consequently, the test is used to detect inadequate pasteurization or the addition of raw milk.
(2) Standard count: The bacteriological quality of pasteurized milk is determined by the standard plate count. Most countries in the West enforce a limit of 30,000 bacterial count per ml of pasteurized milk.
(3) Coliform count: Coliform organisms are usually completely destroyed by pasteurization, and therefore, their presence in pasteurized milk is an indication either of improper pasteurization or post-pasteurization contamination. The standard in most countries is that coliforms be absent in 1 ml of milk.

GUIDED BY
DR. ANUP KUMAR DAS
HOD, Department of Community Medicine
Rajkot Homoeopathic Medical College
Parul University

GUIDED BY
DR. HUMANI SHARMA
Lecturer, Department of Community Medicine
Rajkot Homoeopathic Medical College
Parul University

PREPARED BY
JAY SARVAIYA
Roll no. 83, 4th BHMS
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