

Microbiology online

Yoghurt - A thick and creamy fermented dessert

Yoghurt is a fermented milk product in which milk is inoculated with a starter culture containing two different types of lactic acid bacteria. The process of yoghurt making has been around thousands of years and originated in the warm climate of Mesopotamia, the present day Middle Eastern country of Iraq, when stored goat's and sheep's milk fermented naturally in the high summer temperatures. The mixture was then hung in animal skins to cool. A soft curd called 'jugurt' was formed. This is where the word yoghurt comes from.

Today a starter culture of *Streptococcus thermophilus* and *Lactobacillus bulgaricus* is normally used. As the bacteria grow they use the milk sugar lactose as an energy source and produce lactic acid. Initially *Streptococcus thermophilus* ferments the lactose; as the level of acid accumulates its is suppressed. *Lactobacillus bulgaricus*, which is more acid tolerant, continues to ferment the remaining lactose. During this process the pH drops from 6.5 to around 4.5. This inhibits the growth of spoilage microbes. Consequently yoghurt keeps well in the fridge for some days. The presence of lactic acid causes the structure of the milk protein to change this gives yoghurt its special thickened texture. The lactic acid also gives the yoghurt its sharp taste. Other products of the lactic acid fermentation such as acetaldehyde give the yoghurt its characteristic smell.

Josiane Dunn's recipe for homemade yoghurt

Ingredients

575 ml (1 pt) UHT milk (the use of UHT milk removes the need to sterilize the milk by boiling it.)
2 tbs of unpasteurised natural yoghurt or bio-yoghurt
2 tbs of dried milk powder

Method

1. Heat the UHT milk to 43 °C. The lactic acid bacteria grow best at this temperature. Take care not to overheat or the bacteria will be killed.
 2. Add the starter culture and dried milk powder. Mix well.
 3. Pour the mixture in to a pre-warmed wide necked vacuum flask. Replace the lid and leave for 6-8 hours.
 4. Pour the yoghurt into a bowl and cover with cling-film and place in a refrigerator for 4 hours. The yoghurt will get even thicker during this time. The yoghurt will then be ready to eat.
- All containers and utensils must be thoroughly cleaned before they are used to prevent contamination.
 - Once the yoghurt has been made it must be stored at 4 °C and eaten with in 4 -5 days.
 - The yoghurt can be flavoured with fruit puree as preferred.

Time

Preparing yoghurt 40 minutes; incubation 10-12 hours.

