

Growing Microorganisms

BACTERIA

- ★ Yoghurt - add bacteria to warm milk (warm so bacteria can grow, reproduce + ferment)
- Bacteria breaks down the lactose in the milk → produces lactic acid (sharp tangy taste) known as lactic fermentation.
- Lactic acid causes the milk to clot and solidify (change in pH changes texture)
- yoghurt made - mix in flavourings etc.

(once the yoghurt forming bacteria has worked on milk it prevents the growth of other bacteria which would spoil the milk. Yoghurt lasts longer than milk.)

- ★ Cheese - add starter culture of bacteria to warm milk
- bacteria breaks down lactose → lactic acid (more than yoghurt hence more solid)
- enzymes added to increase separation of milk.
- when completely curdled, curds separated from liquid whey.
(curds used for cheese-making, whey as animal food)
- cut and mix curds with salt along with other bacteria or moulds before you press and leave them to dry out. Bacteria + mould affect development of final flavour + texture.

YEAST

Glucose + Oxygen → Water + Carbon Dioxide + Energy.

Yeast is a single celled organism that can respire aerobically (producing CO_2).

anaerobically yeast breaks down sugar to produce ethanol + CO_2 .

Glucose → Ethanol + Carbon Dioxide + Energy.

★ Bread-making

- Yeast mixed with sugar (energy source) before it is added to flour and water.
- Bread dough kept warm while rising as enzymes work better raising yeast to grow and divide as fast as possible in warm temperatures.
- In oven heat CO_2 gas bubbles released from respiring yeast expand more.

★ Making Beer (depends on a process called MALTING)

- Soak Barley grains in water to keep them warm.
(germination begins, enzymes break down the starch in the barley grains into a sugary solution)