INFORMATION SHEET

Yeast is a fungus. Yeast may be grown on a semi-solid agar medium but also in a liquid in which it grows best. For a carbon source, yeast may use simple sugars. Under ideal conditions, yeast reproduces extremely rapidly, perhaps doubling in numbers every 20 or 30 minutes. This exponential growth could theoretically result in incredibly large numbers of yeast cells within a few hours or days.

In order to grow, yeast cells need a supply of suitable food, mostly organic, but also some inorganic nutrients, and an appropriate temperature. A shortage of water or air and an unfavourable pH may reduce their growth.

As yeast cells grow they produce waste products, which accumulate around them and this may have the effect of poisoning the cells. Yeast growth slows down and may stop owing to lack of nutrients and the build-up of toxic substances, e.g. alcohol.

Some definitions you may need

Aerobic respiration – a chemical process where an energy source is broken down to release energy and carbon dioxide in the presence of oxygen.

Glucose + oxygen ⟶ water + carbon dioxide + energy

Anaerobic respiration – a chemical process where an energy source is broken down to release energy and alcohol or lactic acid in the absence of oxygen.

Glucose ⟶ alcohol/lactic acid + carbon dioxide + (less) energy

Alcoholic fermentation – a form of anaerobic respiration

Methylene blue indicates the presence of oxygen in water. If there are micro-organisms in the water, they use up the oxygen and cause the methylene blue to become colourless. The more micro-organisms a water sample contains, the faster the methylene blue loses its colour.

Yeast is a single-celled fungus that uses oxygen when it respires. In favourable conditions the yeast will multiply rapidly and quickly use up the oxygen in the solution.