

Food production: micro-organisms and fish farming

What is the word equation for anaerobic respiration in yeast?

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Why does bread dough rise?

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What happens to the ethanol when bread is baked?

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In the yeast practical, why is a layer of oil added?

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How can the rate of anaerobic respiration in yeast be measured?

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Name two control variables in the yeast practical.

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In the yeast practical, why is the sugar solution boiled and cooled first?

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Which bacterium makes yoghurt and what does it make?

Yeast respires anaerobically and makes carbon dioxide, whose bubbles are trapped in the dough.

Glucose → ethanol + carbon dioxide.

To keep oxygen out, so the yeast respires anaerobically.

It evaporates. The heat also kills the yeast.

Any two from: mass of yeast, volume and concentration of sugar solution, type of sugar, time, depth of oil layer.

Measure the volume of carbon dioxide collected, or count the bubbles, in a set time.

Lactobacillus changes lactose (milk sugar) into lactic acid.

Boiling removes dissolved oxygen. Cooling stops the heat killing the yeast.

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Why is milk pasteurised before making yoghurt?

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How does lactic acid thicken milk?

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What are aseptic precautions in a fermenter?

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Why is a fermenter oxygenated and agitated?

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Why does a fermenter need a cooling jacket and a pH probe?

The lower pH makes the milk proteins clump together.

To kill unwanted micro-organisms that could spoil the yoghurt.

Oxygen allows aerobic respiration for growth. Stirring spreads nutrients, oxygen and heat evenly.

Sterilising equipment and nutrients so that unwanted micro-organisms cannot get in.

Respiration releases heat, so cooling keeps the optimum temperature. The pH is kept at the optimum for enzymes.