

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?

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Biology only

Why are fish of similar size kept together on a fish farm?

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Biology only

List the points a fish farmer controls.

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Biology only

Why must waste products be removed from fish tanks?

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.

To reduce intraspecific predation, where larger fish eat smaller fish of the same species.

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

Faeces and uneaten food release toxic substances such as ammonia, which harm the fish and pollute the water.

Water quality, predation, disease, waste removal, feeding quality and frequency, and selective breeding.