

Edexcel Biology IGCSE

5.6: Anaerobic Respiration

Practical notes

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Anaerobic Respiration

Aim

Investigate the role of anaerobic respiration by yeast in different conditions by counting the number of CO₂ bubbles produced in 1 minute.

Equipment

- Boiling tube
- Test tube
- Yeast
- Sugar solution
- Oil
- Limewater
- Water + beaker + bunsen burner / thermostatically controlled water bath
- Thermometer
- Delivery tube
- Electronic balance

Method

1. Measure a fixed volume of sugar solution and add to the boiling tube.
2. Place the boiling tube into a water bath for 5 minutes.
3. Weigh a fixed mass of yeast and add to the boiling tube.
4. Add a small quantity of oil to cover the top of the solution to prevent air from entering the solution.
5. Use a delivery tube and a bung to connect the boiling tube to another test tube half-filled with limewater. Start timing immediately.
6. Count the number of bubbles produced in 1 minute and record in a table as seen below.
7. Repeat steps 1-6 twice and take a mean number of bubbles.
8. Repeat steps 1-7 at a range of different water bath temperatures.

	Number of bubbles observed in 1 minutes			
Temperature	1	2	3	Mean number of bubbles

Controlled variables

- Mass of yeast
- Volume and concentration of sugar solution
- Time for timing

Sources of error

Bubbles may form too quickly to be counted accurately.
 If the water bath is too hot it will kill the yeast.



Potential Hazards

Wear goggles when using lime water and a Bunsen burner.

Tie long hair back when using a Bunsen burner.

