

Edexcel Biology IGCSE

2.39: Respiring Seeds Practical Notes

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Respiring Seeds

Aim

Investigate the evolution of:

A. carbon dioxide

and

B. heat

from respiring seeds or other suitable living organisms.

Equipment for A

- 4 conical flasks
- Sodium hydroxide
- Hydrogencarbonate indicator
- Respiring seeds
- Delivery tubes
- Moist cotton

Method for A

1. Pour some sodium hydroxide solution into the first conical flask. This is connected to the inlet pipe that allows the inflow of air, and remove carbon dioxide from the air.
2. Pour some hydrogencarbonate indicator into the second conical flask. This is connected to the first conical flask with a delivery tube.
3. Place the respiring seeds in the third conical flask on some moist cotton wool. This is connected to the second conical flask.
4. Pour some hydrogencarbonate indicator into the fourth conical flask. This is connected to the third conical flask, and also the outlet pipe that allows the outflow of air.
5. Note the colour of the hydrogencarbonate indicator in flask 2 and 4 after some time eg. 30 minutes. Compare the colour to a colour standard to find the carbon dioxide content of the 1) the air supplied to the respiring seeds and 2) the air released after being used by the respiring seeds.



Equipment for B

- Thermometer
- Respiring seeds
- Boiled seeds
- Moist cotton
- Thermoflasks

Method for B

1. Set up 2 thermoflasks.
2. Place respiring seeds with moist cotton wool in one thermoflask.
3. Placed boiled seeds with moist cotton wool in the other to act as a control.
4. Use a thermometer to measure and record the initial temperature.
5. After a fixed number of days, measure and record the final temperature. Calculate the temperature difference.

Controlled variables

- Number of days
- Number of seeds

Sources of error

The thermometers used may have different sensitivities to temperature change.

Potential Hazards

Be careful with sodium hydroxide solution - wear goggles and wash immediately the solution comes into contact with skin.

