

Edexcel (A) Biology A-level

CP 01 - Effect of caffeine on heart rate in Daphnia

Flashcards

Why is *Daphnia* selected as the organism in this practical?

Why is *Daphnia* selected as the organism in this practical?

They have translucent bodies so the heart rate can be more easily observed.

How does caffeine act in humans?

How does caffeine act in humans?

It is a stimulant that increases heart rate by increasing the release of excitatory neurotransmitters.

How is the control set up?

How is the control set up?

Replace caffeine solution with distilled water to measure the heart rate of the *Daphnia* without the effect of caffeine.

What steps should students take to ensure that the *Daphnia* are ethically treated?

What steps should students take to ensure that the *Daphnia* are ethically treated?

Minimise the amount of time exposed to stressful testing conditions

Release into a stream/pond after the practical

Why should a cover slip not be used
when observing the organism?

Why should a cover slip not be used when observing the organism?

To allow oxygen to reach the organism, preventing conditions from becoming anoxic.

What is the purpose of placing cotton wool on the slide?

What is the purpose of placing cotton wool on the slide?

To restrict the movement of the organism so that it will be easier to count its heart rate.

Outline the procedure to this practical.

Outline the procedure to this practical.

1. Dilute the caffeine solution to produce several concentrations.
2. Place some cotton wool on a cavity slide. Add one large water flea.
Use filter paper to absorb excess water.
3. Use a dropping pipette to add a few drops of distilled water to the slide.
4. Use a stopwatch to time a minute and record the number of heartbeats.
5. Repeat the experiment, replacing the distilled water with a caffeine solution.