

The effect of Substrate Concentration on Enzyme Activity

Background Information:

The enzyme catalase is found in the cells of living organisms. Catalase breaks poisonous hydrogen peroxide into harmless water and oxygen gas. Catalase is readily available in blood. A good source of this is fresh liver.

Problem: Does substrate concentration affect the relative activity of the enzyme catalase?

Hypothesis: _____

Aim: To observe how substrate concentration affects the relative activity of the enzyme catalase.

Materials: 6 test tubes, hydrogen peroxide solution (6%), distilled water, measuring cylinders (2), liver tissue, scalpels, scales, safety glasses, gloves, marker pen.

Method:

1. Prepare seven different solutions of 6% hydrogen peroxide solution and one test tube of distilled water as shown in the table below.

Test Tube A	Test Tube B	Test Tube C	Test Tube D	Test Tube E	Test Tube F	Test Tube G
2ml of hydrogen peroxide solution + 10ml of distilled water	4ml of hydrogen peroxide solution + 8ml of distilled water	6ml of hydrogen peroxide solution + 6ml of distilled water	8ml of hydrogen peroxide solution + 4ml of distilled water	10ml of hydrogen peroxide solution + 2ml of distilled water	12ml of hydrogen peroxide solution	12ml of distilled water

2. Calculate the percentage of hydrogen peroxide concentration in each test tube and record the results in a table.
3. Add 0.5 gram of liver to each test tube.
4. Measure the height of the bubbles produced in each test tube.
5. Record the height of the bubbles in the table.
6. Plot the results on a graph.