

Amylase Hydrolysis of Glycogen or Starch

Experiment 17 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To relate substrate breakdown to amylase activity in a teaching reaction.

Principle

Amylase breaks internal alpha-1,4 glycosidic bonds in suitable glucans. Loss of the iodine-starch colour or a validated product measurement can follow substrate breakdown; the two endpoints measure different properties.

Requirements

- Teaching starch or glycogen solution, assigned amylase system, controls and prescribed measurement setup.

Procedure

1. Set controls

Compare active-enzyme material with the assigned inactive-enzyme or no-enzyme control.

2. Follow the assigned reaction

Keep the stated pH, temperature, substrate basis and observation intervals the same across compared tubes.

3. Read the endpoint

Record the change in substrate indicator or product signal at each assigned interval.

4. Plot and interpret

Plot the measured endpoint against time and explain how the control supports the conclusion.

Medicinal Biochemistry

Observations and Record

Time	Active-enzyme endpoint	Control endpoint
t1	_____	_____
t2	_____	_____
t3	_____	_____

Worked Example

The numbers below are illustrative; enter your own observations in the record.

- Rate = change in the defined measurement ÷ elapsed time, within the method's linear measurement region.

Result

Record the completed observations, calculations and conclusion with units. State any limitation of the observation.

Precautions

- Do not compare tubes with different substrate amounts or unstated conditions.
- Loss of an iodine colour is not by itself a glucose concentration.

Viva Questions and Answers**1. Which bonds does amylase mainly attack?**

Internal alpha-1,4 linkages in suitable glucans.

2. Why is the control necessary?

It distinguishes enzyme-related change from background or handling effects.

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