Enzymes and Fermentation

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Materials and Reagents

1. Large and small test tubes
2. Ruler
3. Boiled yeast suspension
4. Active yeast suspension
5. 5% glucose solution
6. 5% galactose solution
7. 5% sucrose solution
8. 5% Swerve™ solution

Experiment Overview

This lab investigates two biological processes: the enzymatic activity of catalase in yeast and the fermentation of different carbohydrate sources by yeast cells.

The catalase activity experiment examines how yeast breaks down hydrogen peroxide into water and oxygen. By monitoring oxygen gas production, we can analyze how catalase functions under different conditions.

The fermentation experiment explores how yeast metabolizes different sugars glucose, galactose, sucrose, and Swerve™ to produce energy. Yeast cells will be placed in test tubes containing each sugar, and carbon dioxide production will be measured at regular intervals for over an hour. The amount of gas produced will indicate how efficiently yeast ferments each sugar.

By conducting these experiments, we can better understand enzyme activity, yeast metabolism, and how different sugars influence fermentation rates.