

**EXPERIMENT 9: BIOCATALYSIS****Course Learning Outcome:**

Solve problems related to transport system processes, mechanisms for adaptations in living things, ecological and environmental issues in biology.

(C4, PLO 2, MQF LOC ii)

**Learning Outcomes:**

At the end of this lesson, students should be able to:

- i. Describe the mechanism of enzymatic action
- ii. Explain the factors that affect the enzymatic reaction.

**Student Learning Time:**

Face-to-face	Non face-to-face
1 hour	1 hour

**Direction:** Read over the laboratory manual and answer the following questions.

**Check this out:**

Usually an apple will turn brown when cut. This condition is related to the presence of certain enzymes. It can be overcome by soaking the apple in lemon juice or blanched in boiling water. Give your opinion.

**Introduction**

Let's give this virtual lab a try. It will assist you to know about enzymes. Scan the QR code or click the URL.



<https://biomanbio.com/HTML5GamesandLabs/LifeChemgames/enzymatichtml5page.html>

1. State the definition of enzymes.

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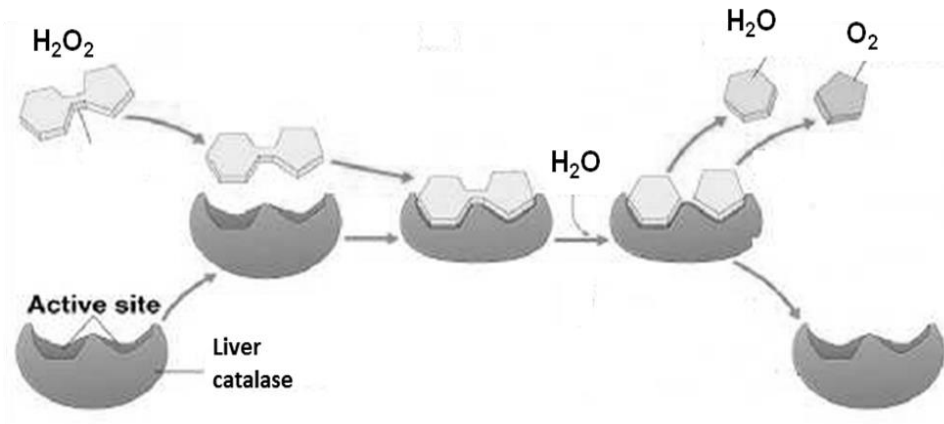
2. What is the function of enzymes?

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3. State the factors that affect the enzymatic reactions.

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4. **FIGURE 1** shows the substrate and products for an enzymatic reaction.



**FIGURE 1**

a. What is the substrate for the enzyme catalase?

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b. The accumulation of H<sub>2</sub>O<sub>2</sub> in the body is toxic. How does catalase work to overcome this problem?

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**Experiment:**

1. State the variables for the catalase activity in this experiment:

- a. Manipulative : \_\_\_\_\_
- b. Responding : \_\_\_\_\_
- c. Constant : \_\_\_\_\_

2. What is the purpose of qualitative test for catalase activity? Briefly explain.

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3. The amount of KMnO<sub>4</sub> used in this experiment need to be determine? Why?

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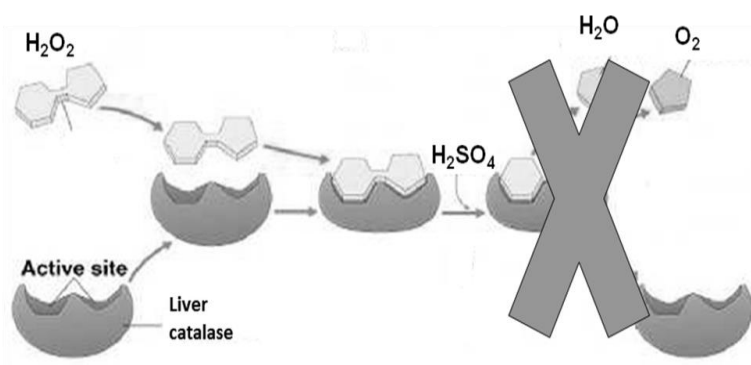
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**FIGURE 2**

4. **FIGURE 2** shows the addition of  $H_2SO_4$  to the reaction. State the role of  $H_2SO_4$ .

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5. Sketch graphs and write discussion review for the expected results for each factor that affects the activity of catalase.

a. Temperature	b. pH
Graph:	Graph:
Discussion review:	Discussion review: