

ENZYME INVESTIGATIONS

Name _____

LAB #1: POOR PEROXIDE

Background: Living things make hydrogen peroxide as a result of their metabolism (chemical reactions of life). The problem is...hydrogen peroxide can damage cells. So...nature has found a way to get rid of it. The enzyme is called **Catalase**. Catalase speeds up the break down of hydrogen peroxide into water and oxygen that won't hurt us. (You see this as bubbles!)

Materials: Piece of Fresh Chicken Liver Aluminum Foil (easy cleanup)
Pipet Safety Equipment
Piece of Cooked Chicken Liver Hydrogen Peroxide

Procedure:

1.) Get a piece of fresh chicken liver and lay it on a small piece of aluminum foil. (*Remember that the enzyme Catalase is in the liver) Put 5-10 drops of hydrogen peroxide on the liver. Watch what happens. Write what happens below.

2.) In your own words, what caused this. Hint: Look in background.

3.) Now, get a piece of cooked chicken liver. Put 5-10 drops of hydrogen peroxide on the liver. Watch what happens. Write what happens below.

4.) In your own words, but using vocabulary we learned, write what happened and why.

5.) **CLEAN UP AS INSTRUCTED**

LAB #2: PEPPY PINEAPPLE PROTEASE

Background: Proteases are a group of enzymes that regulate the break down of protein. **Papain** is a protease found in the papaya fruit. **Bromelin** is a protease found in pineapple. **Pepsin** is a protease found in our stomach to help break down proteins. It only works in acidic conditions (wonder why?)

Gelatin (Jell-O) is made from a protein called collagen, which comes from the joints of animals. (Yummy huh?)

Directions on Jell-O read, A Fresh or frozen pineapple must be cooked before adding@

Materials: Liquid Gelatin (from teach)
2 Sample Cups
Fresh Pineapple (1 piece/group)

Sharpie/Other Writing Tool
Canned Pineapple (1piece/group)

Procedure:

Day#1

- 1.) Fill 2 sample cups about 2 full with hot gelatin liquid.
- 2.) Label each cup. 1) Fresh Pineapple 2) Canned Pineapple
- 3.) Label each cup with group initials or code name
- 4.) Put a piece of fresh pineapple in one, canned pineapple in one (in properly labeled cups)
- 5.) Refrigerate over night.

Day #2

- 1.) Remove cups from fridge & answer the following questions

A.) What macromolecule is in the gelatin? _____

B.) Describe each cup of gelatin

Fresh Pineapple

Canned Pineapple

C.) Why does pineapple need to be cooked before adding it to gelatin?

D) What does cooking the pineapple do to the enzyme bromelin?

E) Fresh pineapple is used as a meat tenderizer. Why is this?

-CLEAN UP AS INSTRUCTED

