Sly Espinoza

12/3/2023

Thursday Lab

Lab #3 Properties of Enzyme Action

Purpose: Investigate why pancreative lipase has a major role in fat digestion.

Procedures:

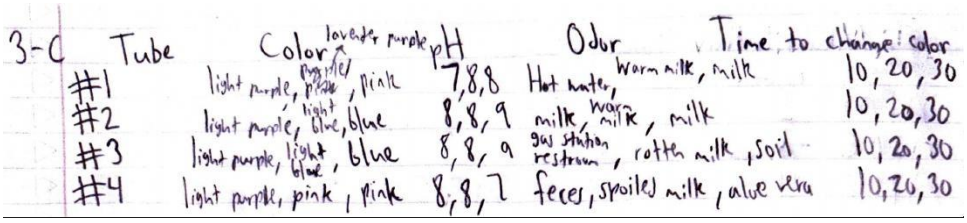
3 – C: Digestion of fat with pancreatic lipase and bile salts

1. Add just enough litmus powder to a container of dairy cream to produce a medium blue color. Pour 3 ml of the litmus cream into 4 separate test tubes. Into two additional test tubes pour 3 ml of 2% pancreatin. Preincubate the litmus cream and the pancreatin separately in a 37°C water bath for 5 minutes. Then prepare four test tubes as follows:

Tube #1: 3 ml cream + 3 ml pancreatin
Tube #2: 3 ml cream + 3 ml distilled water
Tube #3: 3 ml cream + 3 ml pancreatin +pinch of bile salts
Tube #4: 3 ml cream + 3 ml distilled water + pinch bile salts

2. Gently shake each tube for 30 seconds to mix in the bile salts. Incubate all four tubes in a 37°C water bath for 1 hour, checking every minute for the first 5 minutes or until the first tube changes color, then every 15 minutes for the rest of the hour. Record the time and number of the tube. Continue checking for the remainder of the hour.
3. Remove the tubes from the water bath. Test the pH of each tube using pH paper and note the odor and color of each tube. NOTE: Blue litmus will turn pink in an acid environment.
4. Summarize the results in the following table: Tube Color pH Odor Time to change color.
5. Explain how the digestion of fat affects the pH of the solution and how bile affects the rate of digestion.

Results:



3-C Tube	Color (lavender purple)	pH	Odor	Time to change color
#1	light purple, purple, pink	7,8,8	Hot water, warm milk, milk	10, 20, 30
#2	light purple, light blue, blue	8, 8, 9	milk, warm milk, milk	10, 20, 30
#3	light purple, light blue, blue	8, 8, 9	gas station restroom, rotten milk, soil	10, 20, 30
#4	light purple, pink, pink	8, 8, 7	feces, spoiled milk, aloe vera	10, 20, 30

Discussion: Enzymes are complex proteins that initiate and accelerate specific chemical reactions without being changed or used up. Enzymes act as catalysts due to their complex molecular configuration, which provides temporary binding sites for specific substrate molecules.

Conclusion: In conclusion, we noticed that there were some similarities between the colors and pH. Not much of a difference in pH ranging from 7-9 and colors being mostly light purple. We now understand the manner in which enzymes operate. Pancreatic lipase has a major role in fat digestion, but by itself, lipase is ineffectivebecause it is a water-solubleenzymetrying to act on large lipid droplets, which are water insoluble.