

Physiology Lab Report #3 -

Lab 3C: Digestion of Fat with Pancreatic Lipase & Bile Salts

Purpose

- In this experiment we examine the action of the pancreatic lipase and the bile salts on the lipids. We did this by creating various substances and watching how the substances break down fats to understand digestion.

Procedures

- The materials I used in this lab were:
 - Litmus Cream
 - Test Tubes
 - Distilled Water
 - Pancreatin
 - Pinch of Bile Salts
 - Incubator
 - pH test strips

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1. Gather the materials and add a small amount of litmus powder into the dairy cream until it turns medium blue. Then pour 3ml of the litmus cream into 4 different test tubes. After, take 3 ml of 2% pancreatin and put it into 2 more test tubes. Then, preincubate the litmus cream and pancreatin separately in a 37° C water bath for 5 minutes. Finally, you will prepare four test tubes according to these instructions:
 - 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. After the test tubes have been prepared, gently shake each tube for 30 seconds to ensure that the bile salts are mixed well. Then, place all four tubes in a 37° C water bath and let them incubate for 1 hr. Check the tubes every minute for the first five minutes or until the first tube changes color and then the tubes must be checked every 15 minutes for the entire hour. Ensure that you record the time and tube number along with any color changes.

- Once the hour is over remove the test tubes from the water bath. Test the pH of each tube using the pH test strips and note the color and odor of each individual tube
- Finally, summarize the results in a table.

Results

Test Tube	Color	pH	Odor	Time to Change
#1	½ of the tube is pink & ½ of the tube is lavender	7	Rotten Milk	5 mins
#2	light purple throughout	8	Rotten Milk	15 mins
#3	very pink	6	Cheese	15 mins
#4	milky blue/lavender color at the top and & deep blue/lavender at the bottom	8	Terrible!!! Dead animal.	15 mins

Discussion

- In this lab we learned how pancreatic lipase and bile salts work together to aid in the digestion of fats. It was interesting to see how some of the test tubes that did not contain bile salts did not really change much in color as opposed to the ones that did contain bile salts. In a way that is showing how bile salts are emulsifiers and they help break down fat into small droplets and that works or aids the lipase for digestion to occur. It was cool to see that the pH of the two did not change and their colors stayed the same. However, the odor of the fourth was really strong and terrible!

Conclusion

- The basis of this experiment was for us to understand digestion and how lipase and bile salts unite for it to occur. It was important for us to see that they play a crucial role in digestion and that bile salts are emulsifying agents for lipase. This lab helps us understand the important mechanism in lipid digestion.