Lab 3- Properties of Enzyme Action

Purpose:

The purpose of this lab is to study enzymes and observe their chemical reactions. In this particular case we took a look at the digestion of fat with pancreatic salts and lipase. Bile salts help emulsify fats (break them down into smaller pieces) so that lipase can continue with hydrolysis of fats. This lab helped us observe some of the activity of bile salts and pancreatic lipase on lipids.

Procedure:

3C- 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 salts2. 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 5minutesoruntilthe first tube changes color, then every 10minutes for the rest of the half an 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. Explain how the digestion of fat affects the pH of the solution and how bile affects the rate of digestion.

Results:

Digestion of fat with Pancreatic lipase and bile salts.

Tube Incubation Time:	5 min	10 min	10 min	10 min	PH
#1 Cream & Pancreatin	Purple	Purple	Light purple	Light Purple	7
#2 Cream& Water	Purple	Dark purple	Dark Purple	Dark/Separating	8
#3 Cream & Pancreatin &Bile salts	Purple	Light Purple	Pink	Pink	6
#4 Cream & Water & Bile salts	Purple	Dark purple	Dark Purple	Blue/Separating	8

Discussion:

In conclusion, this study demonstrated the chemical reaction between enzymes and lipids. The more fat you have, the higher the PH of the acid. Bile helps the process of breaking down fats by emulsification. The test tube with the bile salts seemed to have a highly acidic PH.