Delanie Duran
Tuesday Lab
09/11/23

Laboratory 3C- Digestion of Fat with Pancreatic Lipase and Bile Salts

Purpose: The purpose of this lab is to see how pancreatic lipase acts in different conditions where it's not familiar, like how it performs in the body. Pancreatic lipase plays a major role in fat digestion, but when it's isolated, the lipase is ineffective. Lipase is a water-soluble enzyme placed with large lipid droplets that are water insoluble. The pancreas aids in digestion by secreting sodium bicarbonate which provides a pH of ≈ 7.8 in the small intestine. The lab consists of testing pancreatic lipase, bile salts and distilled water.

Procedure: In the procedure, 3 mL of litmus cream will be poured into 4 separate test tubes. In two additional test tubes, 3 mL of 2% pancreatin will be poured. The litmus cream and pancreatin will separately preincubate in a 37°C water bath for 5 minutes. After the water bath, the 4 test tubes will be prepared with additional substances. For test tube #1: 3 mL litmus cream + 3 mL pancreatin, test tube #2: 3 mL litmus cream + 3 mL distilled water, test tube #3: 3 mL litmus cream + 3 mL pancreatin + pinch of bile salts, test tube #4: 3 mL litmus cream + 3 mL distilled water + pinch of bile salts. The test tubes with bile salts should be shaken for 30 seconds to mix in the bile salts and then incubate all 4 test tubes for an hour. First, check every minute for the first 5 minutes or until the first tube changes color. Check every 15 minutes for the rest of the hour to record the results. After the hour, test the pH of each tube and odor.

Delanie Duran
Tuesday Lab
09/11/23

Results:

	Tube	**Color**	**pH**	**Odor**	**Time to change color**
+ pancreatin	#1	light pink	4.0	moldy cheese	45 minutes
+ DI water	#2	no change	8.0	slight mold smell	N/A
+ pancreatin + bile salts	#3	no change	7.0	burnt	N/A
+ DI water + bile salts	#4	purple-pink	6.0	moldy cheese	10 minutes

Discussion: In this lab, we tested out 4 different test tubes of litmus cream mixed with either distilled water or bile salts to reenact a reaction that takes place in the body. This lab had some interesting results that we weren't expecting. Test tube #3 with pancreatin and bile salts, we were expecting to change color because of the bile salts. Test tube #2 with DI water, we were surprised on why it smelt like test tube #1 with pancreatin and test tube #4 with DI water and bile salts. Potential errors that could have occurred was spillage of the product when shaking the bile salts into the test tube. Everyone's test tubes were distributed between 2 water baths, so it could be

possible that some test tubes were switched around accidentally if the test tubes were in a crowded water bath of identical test tubes.

Conclusion: This lab was to examine how pancreatic lipase acts in conditions outside of the body, but with the same components it's familiar with. A major role in fat digestion is pancreatic lipase, but by itself, the lipase is ineffective. Lipase is a water-soluble enzyme placed with large lipid droplets that are water insoluble. This lab consisted of testing pancreatic lipase, bile salts and distilled water to test how these components would work while digesting enzymes.