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Laboratory 3 – Properties of Enzyme Action
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Purpose – The purpose of laboratory 3-C was to examine some aspects of the action of pancreatic lipase and bile salts on lipids. The pancreatic lipase has a major role in fat digestion but lipase itself does not cause effect because it is water soluble enzyme trying to act on large lipid droplets. Bile salts overcome this problem by acting as emulsifying agents and break down the fat into smaller droplets. In this experiment we use bile salts, which plays an important role in emulsifying fats.

Procedures – Laboratory 3-C, digestion of fat with pancreatic lipase and bile salts was a very interesting experiment. As our set-up we had four test tubes, litmus powder, dairy cream, pancreatic, distilled water, and bile salt. To start off you add enough litmus powder to your dairy cream to give it a medium blue color. You pour 3 ml of litmus cream into four separate test tubes. In two of those test tubes, you pour 3 ml of 2% pancreatin and we then pre-incubate the litmus cream and the pancreatin (all 4 test tubes) separately in a 37 C water bath for 5 minutes. After the first 5 minutes have passed, you number all 4 test tubes (1-4). In tube #1 which has the 3 ml of cream you add 3 ml of pancreatin, in tube #2 which has 3 ml of cream you add 3 ml of distilled water, in tube #3 which has 3 ml of cream and 3 ml of pancreatin you add a pinch of bile salt, and for tube #4 which has 3 ml of cream and 3 ml of distilled water you add a pinch of bile salt. You seal the top of all 4 test tubes and gently shake each tube for 30 seconds to mix the bile salts. We then incubate all four test tubes in a 37 C water bath for 1 hour, you check every minute for the first 5 minutes or until the first tube changes colors. Then you check every 15 minutes for the rest of the hour. Make sure to record the the time and number of the tube every time you check them. After the 1 hour has passed, remove the test tubes from the water bath and test the pH of each tube using pH paper (strips) and note the color and odor of each tube. Once you get all results you construct a table.

Results –

Tube	Color	pH	Odor	Time to change color
#1	Light pink	6	Smells like cheese	After 45 min
#2	Purple	9	Light odor	No color change
#3	Light purple (yellow top)	6	Strong odor	After 15 min
#4	Pinkish	8	Medium odor	After 30 min

Discussion – Laboratory 3-C was a short experiment but a time consuming one. This experiment was interesting due to the smells and colors. We had 4 different test tubes and 4 different solutions in each, we had litmus cream, pancreatin, distilled water, and bile salt. All these tubes

were mixed with each of these substances. We submerged the tubes in 37 Celsius water and watched it turn a different color for an hour. Three of the tubes turned a pink and yellow color. All tubes had a funny odor, some of them had a strong smell like rotten cheese and one of them was a lighter smell like cheese. I don't understand how various solutions mixed have a drastic change in smell. We used bile salt in two of the test tubes that had litmus cream, pancreatin, and distilled water, the bile salts helped emulsify the fats in the test tubes. I personally think the test tubes changed colors due to the temperature of the water they were submerged in and the bile salt, I feel like it played a major role.

Conclusion – All in all, in laboratory 3-C examine some aspects of the action of pancreatic lipase and bile salts on lipids. In this experiment we use bile salts, which plays an important role in emulsifying fats. I enjoyed performing this lab because I saw different reactions in colors due to the bile salt we were using and the pancreatic. I really enjoy the labs we do I'm class because it helps me understand some of the lecture that was presented in class, I really enjoy performing experiments.