Prosperities of Enzyme Action

Purpose

Pancreatic lipase has a major role in fay digestion, but by itself, lipase is ineffective because it's a water-soluble enzyme trying to act on large lipid droplets, which are water insoluble. Bile salts help overcome this problem by acting as emulsifying agents, which break the fat into smaller droplets so that lipase has a large surface area for its hydrolysis of fats.
By the end of this procedure, you should be able to identify an enzyme understand the manner in which it operates. You should also understand the effect of a pH and temperature on an enzyme and understand the difference between digestion and emulsification.

Procedures

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.
2. 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 salt

3. 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, thenevery15minutesfor the rest of the hour. Record the time and number of the tube. Continue checking for the remainder of the hour.
4. 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.
5. Summarize the results in the following table: Tube Color, ph, Odor, Time, to change color
6. Explain how the digestion of fat affects the pH of the solution and how bile affects the rate of digestion

Results

Tube	Color	pH	Odor	Time to change color
1	Separated dark pink-pink-and lavender	8	Baby milk	15
2	Foam/separated and milky pink	6	Rotten milk 10/10	60
3	Lavender with foam	8	Rotten milk 5/10	30
4	Dark purple and separated cloudy and foam mist	8	rotten milk 3/10	45

Discussion

Tube one started as a dark purple to a ombre from dark purple to light purple. Then, it started to get ombre getting lighter, eventually its started to separate from a dark pink to a pink to a lavender. Tube two started as a dark purple and stated the same until 60 minutes when it changed it foamed and separated with a milky pink. Tube three started as a dark purple at 15 minutes it was a light purple at 30 minutes it was a light purple with foam at 45 minutes it was a dusty pink separated with foam at 60 minutes it was a lavender with foam. Tube four started as a dark purple at 15 minutes it was the same color just with a bit of foam, at 30 minutes it was a bit darker but the same, at 45 minutes it separated from cloudy and dark purple.

Conclusion

In conclusion, the tubes that had salt smelled less than the ones without. Tubes three smelled the worst. We were able to see how each tube changed every 15 minutes while in the steamer.