Lab Report 3 : Digestion of fat with pancreatic lipase and bile salts

Purpose: To enhance fat digestion by emulsifying fat droplets and creating an ideal pH for lipase action

Procedures:

1. Add just enough litmus powder to a container of dairy cream to produce a medium blue color.
2. Pour 3 ml of the litmus cream into 4 separate test tubes.
3. Into two additional test tubes pour 3 ml of 2% pancreatin.
4. Preincubatethe litmus cream and the pancreatin separately in a 37C water bath for 5 minutes.
5. Then prepare four test tubes as follows
   Tube #1: 3 ml cream + 3 ml pancreatinTube
   #2: 3 ml cream + 3 ml distilled waterTube
   #3: 3 ml cream + 3 ml pancreatin +pinch of bile saltsTube
   #4: 3 ml cream + 3 ml distilled water + pinch bi

6. Remove the tubes from the water bath.
7. Test the pH of each tube using pH paper and note the odor and color of each tube.
8. Summarize the results in the following table:
   a. Tube Color/2nd color pH Odor(1-10) Time to change color

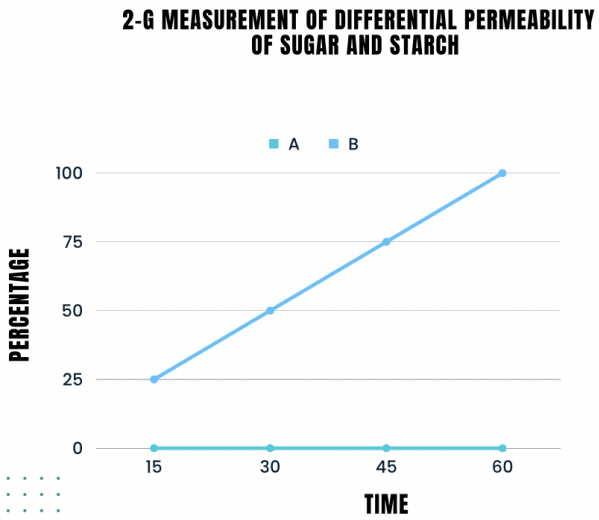
#1	light pink/ pink	7	3	10/30min
#2	Blue/light blue	8	0	10/30min
#3	blue/ light blue	8	5	10/30min
#4	light pink/ pink	6	7	10/30min

Results:

Discussion: These findings imply that the presence of pancreatin, whether alone or in combination with bile salts, resulted in a higher pH than the control tubes with pure water. Furthermore, color and odor variations may signal alterations in the chemical processes occurring during fat digestion. It's worth noting that the time to change color is consistent across all tubes at 10 / 30 minutes, demonstrating a consistent reaction time under the conditions.

Conclusion: Finally, the experiment demonstrated that the addition of pancreatin and bile salts increased the pH level, resulting in a more alkaline (pH 8) environment favorable for fat digestion. After 10-30 minutes, color changes and odor observations were uniform across all tubes. While this indicates improved fat digestion conditions, more study is needed to validate this and look deeper into the processes involved.

2-G Measurement of differential permeability of sugar and starch



Discussion: In conclusion, the series of experiments delved into fundamental biological processes, yielding valuable insights. The investigation of diffusion through liquids unveiled the temperature's impact on diffusion rates, with a constructed graph illustrating the relationship. Diffusion through agar highlighted the role of molecular properties in varying diffusion rates. The filtration experiment underscored how solution thickness affects filtration dynamics. Osmosis experiments provided a comprehensive view of water movement across membranes, emphasizing osmotic equilibrium. Differential permeability insights elucidated membrane selectivity. Lastly, the tonicity experiment demonstrated cellular responses to

different solutions. Collectively, these experiments contribute significantly to understanding diffusion, osmosis, filtration, and cellular behaviors under varying conditions, spanning implications across scientific, medical, and engineering domains.

Conclusion: In conclusion, the experiments delved into diffusion, osmosis, filtration, and tonicity. These investigations shed light on temperature's effect on diffusion, filtration dynamics, water movement in osmosis, and the impact of tonicity on red blood cells. Collectively, they provide valuable insights into fundamental biological processes and their underlying principles.