Activity of salivary Amylase, Trypsin, And Pancreatic Lipase on digestive system.

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BIOL 2312

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July 28, 2020

ABSTRACTION

The aim of this experiment is to show the reactions and the changes that occur with the activity of each enzyme on the digestive system.and to also show the progressive digestion of carbohydrates proteins. Fats and nucleic acids also summarizes the specific enzymes involved in their site of formation and their site of action.

INTRODUCTION

Digestive enzymes are groups of enzymes that break down polymeric macromolecules into their smaller building blocks. In order to facilitate their absorption by the body and these enzymes are;
.Amylase, produced in the mouth,and it helps break down large starch molecules into a smaller molecules
Pepsin, produced in the stomach that breaks down the protein.
Trypsin, produced in the pancreas an play role in protein hydrolysis
Pancreatic lipase produced in the pancreas helps in digestion of dietary triglycerides.

Material and Method
Experiment 1
Observing Salivary Amylase Activity

STEPS
Mark each tube with a pencil and load the tubes using three drops(gtt) of each three substances; amylase, starch, and maltose.each tube with water.
2, placed all tubes in a rack in the 37degree celsius water bath for approximately one hour,
Shake the rack gently from time to time to keep the contents evenly mixed

3,After one hour obtain a sport plate of iodine solution for the IKI or iodine, test and Benedict's solution, set up your boiling water bath using a hot plate boiling chips and a 250-ml beaker
4, While the water heating marks six depressions of the sport 1A-6A (A for amylase) for sample verification.
4, Transfer a drop of the sample from each of the tubes and place a drop of iodine solution. A positive starch test occurs if a blue-black color indicates the presence of starch and if starch is not present, the mixture will not turn blue which refer to as negative text.
4,Place t3 drop of Benedict's solution with the remaining mixture in each tube. Put each tube in a beaker of boiling water for about 5 minutes if a green to orange precipitate forms maltose is present, this is a positive sugar test, A negative sugar test indicates no color change .
IN CONCLUSION
Starch is a component in many foods,When iodine is ae to starch it turns blue that is why in the experiment, the solutions in both beakers turn blue. In addition to saliva which contains amylase,a starch digesting enzyme the starch gradually converts to sugar and once the starch is broken down the blue color disappears. Lastly it is important to know that the salivary amylase requires an alkaline medium to act.

Experiment 2
Observing trypsin activities
Steps
1,Mark each tube with a wax pencil and load the tubes by using 3 drops(gtt) of each substance trypsin water, BAPNA water, and trypsin.
2, Pace all tubes in a rack in the appropriate water bath for approximately 1 hour, shake the rack randomly to keep the contents well mixed.
3, at the end of 1 hour, examine the the tubes for the result for the results of the trypsin assay
RESULT
Since BAPNA is a synthetic color producing substrate, the presence of yellow indicates positive hydrolysis test, the dye molecule has been cleaved from the amino acid.If the sample mixture remain remains clear, a negative hydrolysis test has occur
IN CONCLUSION
Tryptic digestion is a necessary step in protein absorption, as proteins are generally too large to be absorbed through the lining of the small intestine. Trypsin is produced as inactive zymogen trypsinogen in the pancreas.

In humans protein is produced in its inactive form so trypsinogen in the pancreas is needed for its absorption

EXPERIMENT,3
Observing Pancreatic Lipase Activities
STEPS
1,Obtain eight test tubes and a test tube rack plus one dropper bottle of each of the solutions to demonstrates the action of a bile on fats prepares two test tubes and mark them 1E and 1E(for emulsified fats)
. To tube 1E add 20 drops of vegetable oil.
,To tube 2E add 20 drops of water, 4 drops of vegetable oil, and a pinch of biles salts.
. Cover each tube with a small square of parafilm, shake vigorously and allow the tubes to stand at room temperature.
After 10 minutes observe both tubes, if emulsification has occurred. The oil will be floating on the surface of the water if emulsification has occurred. The fat droplet will be suspended throughout the water,forming an emulsion.
For lipase.
.Mark each tube with a wa pencil and loads the tubes using 5 drops (gtt) of each indicated solution
.Place a p pinch of bile salts in tubes 4B and 5B
.cover each tube with a small square of parafilm and shake to mix the contents of the tube
. Remove the parafilm and place all tubes in the rack in the appropriate water bath for approximately 1 hour.Shake the test tube rack from time to time to keep the contents well mixed.
Result.
Fresh cream provides the fat substrates for the assay. The basis of this assay is a pH change that is detected by the litmus powder indicator.
Alkaline or neutral solutions containing litmus are blue but will turn reddish in the presence of aid, if digestion occurs the fatty acids produced will turn the litmus cream from blue to pink. Because the effect of hydrolysis by lipase is directly seen
IN CONCLUSION
Although the bile secret in the liver is not an enzyme this test demonstrates the importance of bile in digestion because of its emulsify action. Biles helps in breaking down large fat particles into small ones.
Overall if one familiarize and take advantage of knowing this experiment and know its basic contents it will help me in particular in dealing with enzymes insufficiencies or food sensitivities it will help my digestive tract properly break down foods that contain difficult to digest proteins, fats and carbohydrates.

As we age, our ability to properly digest food declines. Because of depletion in pancreatic enzymes use by the body to break down proteins,fats,and carbohydrates' And to prevent thi to happening I need to make sure all the tests needed to determine the level of these enzymes in my system are carried out adequately and timely.

I will also set up a project that will raise people's awareness with regards to the enzymes especially in a developing and underdeveloped country in the very near future so that I will contribute to longer life expectancy and save millions of lives from these simple but deadly actions if no action is taken.