

Biology coursework



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Biology coursework The aim of this experiment is to investigate the affect of pH on the enzyme amylase. The amylase is used to break down the polysaccharide starch. Amylase is a digestive enzyme classified as a saccharidase (an enzyme that cleaves polysaccharides). It is mainly a constituent of pancreatic juice and saliva, needed for the breakdown of long-chain carbohydrates (such as starch) into smaller units. Amylase is also synthesized in the fruit of many plants during ripening, causing them to become sweeter, and also during the germination of cereal grains. Grain amylase is key to the production of malt. amylase Enzyme that breaks down starch into a complex sugar that can be used in the body. It occurs widely in both plants and animals. In humans it is found in saliva and in the pancreatic digestive juices that drain into the alimentary canal. Starch is an important food for humans and is found in plants such as potatoes and in wheat grains. It is made of large and insoluble molecules, but under the action of amylase produces sugars that are soluble – these can be absorbed by the body. Human amylase has an optimum pH of 7. 2-7. 4. Like most enzymes amylase is denatured by temperatures above 60°C. The enzyme used in this lab exercise is amylase, which is commonly found in saliva and germinating seeds. It catalyzes the breakdown of starch. When amylase reacts with starch, it cuts off the disaccharide maltose (two glucose molecules linked together). As the reaction progresses, less starch will be present and more sugar (maltose) will be present. In lab, the activity of amylase was observed by using iodine. Remember, iodine reacts with starch to form a dark brown/purple color. As amylase breaks down starch, less and less starch will be present and the color of the solution (if iodine is added) will become lighter and lighter Rates of enzyme-catalysed reactions depend on pH and

temperature. The optimum temperature is about 40°C because the average human body temperature is 37°C. The optimum pH is the neutral one because your mouth has a 7 pH. What links G does amylase break My hypothesis Biological knowledge Effect of pH Active site Enzyme substrate complexes Substrate concentrations etc Bodily temperatures for enzymes Pilot study and relevance List of equipment needed and reasons Method Link to pilot study And repeats Variables and controls Assessing the risk HAZARDS Iodine is toxic and an irritant and will stain clothing. Handle acids with care, avoid contact with skin or eyes.