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Bio 2312 OL42

Tuesday 2:30

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Chemical breakdown of foodstuff

Enzymes are proteins that are produced by the body cells, they help with chemical reactions like the breakdown of sugars. Enzymes are part of a substance known as catalysts and their role is to speed up chemical reactions without becoming part of the product. They are produced in the stomach,mouth,pancreas, and small intestine. When it comes to the shape of enzymes they are based on what is their function. In the digestive system enzymes plays an important role for example one of the 3 types of digestive enzymes, amylase a type of enzymes that break downs scratches into sugars is produced in the salivary gland in addition we have protease a digestive enzymes that break down proteins into amino acids and lipase break down lipids into glycerol and fatty acids (Roland, James. “Why Are Enzymes Important?” *Healthline*, Healthline Media, 16 Jan. 2019).

Materials and methods

When testing for amylase in activity 1, we had 6 test tubes and water was added to the first 3 tubes and starch on the last 3.IKI solution was added to test if there was starch or not. In activity 2 when testing for protein digestion by trypsin, 5 test tubes were needed, water was added in tubes 1&2 and trypsin in 3-4 the tubes were incubating at a temperature of 37 degree and tube 5, 0degree for one hour. Activity 3,7 tubes were needed, tube 1,2,3,4,5are fallowed by the letter L for lipase and sample 4&5 B for bile. 5 each of them are covered with Parafilm, shake to mix properly and after removed and place on incubation for a temperature of 37 degree to 0 degree for tube 5L & 5B.

Results

Activity1: Salivary Amylase Digestion of Starch

Tube no.	*1A*	*2A*	*3A*	*4A*	*5A*	*6A*
Additives	*Amylase, water*	*Starch, water*	*Maltose, water*	*Amylase* ↓ *Boiled amylase, starch*	*Amylase, starc*h	*Amylase, startc*h
Incubation condition	*37*℃	*37*℃	*37*℃	*37*℃	*37*℃	*0*℃
IKI Test (Color change)	No color	Color	No color	Color	Color	Color
Result (+) or (-)	Negative	Positive	Negative	Positive	Positive	Positive
Benedict's test (color change)	No color	No color	Color	No color	Color	No color
Result: (+) or (-)	Negative	Negative	Positive	Negative	positive	Negative

Activity 2: Trypsin Digestion of protein

Tube no.	*1T*	*2T*	*3T*	*4T*	*5T*
Additives (3gtt ea)	Trypsin, water	BAPNA, water	Trypsin ↓ Boiled trypsin, BAPNA	Trypsin, BAPNA	Trypsin, BAPNA

Incubation condition	*37*℃	*37*℃	*37*℃	*37*℃	*0*℃
Color Change	No color	No color	No color	Color	No color
Result: (+) or (-)	Negative	Negative	Negative	Positive	Negative

Activity 3: Pancreatic Lipase digestion of fats

Tube no.	1L	2L	3L	4L	5L	4B	5B
Additives (5 gtt ea)	pancreatin,water	Litmus cream, water	Pancreatin ↓ boiled pancreatin,litmus cream	Pancreatin,litmus cream	Pancreatin,litmus cream	Pancreatin, litmus cream, bile salt	Pancreatin, litmus cream, bile salt
Incubation condition	*37*℃	*37*℃	*37*℃	*37*℃	*0*℃	*37*℃	*0*℃
Color change	No color change	No color change	No color change	Color	No color change	Color	No color change
Result: (+) or (-)	Negative	Negative	Negative	Positive	Negative	Positive	Negative

When Starch and amylase are added we have a negative test, this means there was no color change. When protein was boiled heats killed which means it is no longer active. When we got the temperature lowered to 0℃ it is slower.

References

Marieb, Elaine Nicpon, et al. *Human Anatomy & Physiology Laboratory Manual: Fetal Pig Version*. Pearson, 2019.

Martini, Frederic, et al. *Fundamentals of Anatomy & Physiology*. Pearson, 2018.

Roland, James. "Why Are Enzymes Important?" *Healthline*, Healthline Media, 16 Jan. 2019, https://www.healthline.com/health/why-are-enzymes-important#types-of-enzymes.