

Chemistry project  
report: to study the  
digestion of starch by  
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Chemistry Project Report on To Study the Digestion of Starch by Salivary Amylase and Effect of pH and Temperature on it Submitted by : Class (CBSE) Sr. Sec. School Contents 1 . Certificate 2. Acknowledgement 3. Verification 4. Objectives of the Project 5. Introduction 6. Material Required 7. Procedure 8. Observation 9. Conclusion 10. Bibliography Certificate This is to certify that the investigatory Chemistry project report entitled “ To Study the digestion of starch by salivary amylase and effect of temperature and pH on it” has been completed under my supervision.

Authorized Signatory Chemistry Deptt. Acknowledgement As a student of class XII, I did this project as a part of my studies entitled “ To Study the digestion of starch by salivary amylase and effect of temperature and pH on it” I owe a deep sense of gratitude to my chemistry teacher whose valuable advice, guidance help me in doing this project from conception to completion. At the same his generous patronage and constant encouragement. Finally, I am thankful to my parents for helping me economically and my friends for giving me a helping hand at every step of the project. Signature of Student) Objectives of the Project Report The main objective of this chemistry project report is “ To Study the digestion of starch by salivary amylase and effect of temperature and pH on it” and To study digestion of starch by saliva. To study the effect of temperature on the digestion of starch by saliva. To study the effect of pH on the salivary digestion of starch. Introduction Every health book insists on the chewing of food. The act of chewing stimulates the excretion of saliva. Saliva mixes up with the food and helps its digestion.

That is, the enzyme ptyalin or amylase present in human saliva hydrolyse the big molecules of food into many molecules. For example starch into mono-saccharides maltose and glucose; proteins into amino acids and fats into fatty acids and glycerol. Thus saliva not only helps in digestion of food but convert it into energy generating substances. Further, enzymes and their activity are very sensitive to temperature and PH. Even a slight variation in these two factors, can disrupt the action of enzymes. In other words, digestion of food by salivary amylase is also effected by pH and temperature and can be verified experimentally.

For example, hydrolysis of starch can be verified by testing it with iodine solution. Starch forms blue coloured complex with iodine. If no starch is present in a system it will not give blue colour with iodine. Requirements for Chemistry Project Report The requirements for experiment of Chemistry Project Report are as under : Test tubes Test tube stand One dropper Beaker Stop watch Starch and Iodine solution Thermometer Dil. HCl and Dil NaOH solution. Procedure for Chemistry Experiment is : 1) Collection of Saliva - Rinse mouth throughly with cold water and ensure that it does not contain any food particles.

Now take about 20ml of luke warm water in the outh and gangle for about three minutes so that saliva mixes up well with it. Spit this into a beaker. Filter, if there is any suspended impurity clear filtrate is saliva solution and contains enzyme ptyalin. 2) Preparation of starch solution - Take about 0. 5g of starch in a 100ml beaker and add enough water to make a paste. Dilute the paste by adding 50ml water and boil for about 5 min. 3) Digestion of

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starch (a) take 5ml of the starch solution in a test tube. Add 2 ml of saliva solution into it. Mix the solutions well by shaking the tube carefully and start a stop watch. b) After one minute take out two drops of the mixture solution from the test tube with the help of a dropper and transfer it into another test tube containing about one ml of 1% iodine solution. Note the colour produced, if any. (c) Repeat this test after every one minute taking two drops of the mixture solution and fresh 1% iodine solution continue until the test shows no blue colour. Record the time and blue colour intensity.

Time Passed after mixing	1 Min.	2 Min.	3 Min.	4 Min.	Colour Intensity
	Deep Blue	Blue	Light Blue	No Blue	Absence of blue colour on addition to iodine solution means absence of starch in the mixture solution.

That is whole of the starch has got digested or hydrolysed. Procedure : Effect of temperature on the digestion of starch by saliva. Take three test tubes and label these 1, 2, 3. Take 5ml of the starch solution, 2ml of the saliva solution and 5 ml of water in each test tube. Place test tube No. 1 in water at room temperature, test tube No. 2 in a beaker containing water at 50°C and test tube No. 3 in boiling water. After 5 minutes, observe the colour change on mixing two drops of the mixture of every tube with one ml of 1% iodine solution. Note the intensity of blue coloured form. Conclusion Starch get hydrolysed by saliva amylase.

est tubes and label these 1, 2, 3. 2. Add 5ml of the starch solution, 2ml of the saliva solution in each test tube. 3. Now add 2 ml of water in test tube No. 1, 2 ml of dil HCl in test tube No. 2 and 2ml of dil NaOH solution in test tube No. 3 and shake carefully. 4. Keep the three test tubes in water at room temperature for about 10 minutes. 5. Add two drops of the solution of each test tube with 1% iodine solution and observe

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the colour change. Temperature effects the digestion of starch by saliva with increase in temp salivary analyse get inactivated and process of digestion do not take place.