

## EXPERIMENT: **Hydrolysis of starch by microorganisms**

**Set up Question Answers (to be written in practical file)**

**Q1. What are exoenzymes?**

Exoenzymes are enzymes that are secreted by microorganisms into the surrounding medium outside their body and these enzymes work on substrates found outside the cell. They break down large biomolecules that are too large to be easily transported into the cell. Eg: amylases

**Q2. Name the enzyme involved in starch hydrolysis?**

Alpha amylase

**Q3. What are the products of starch hydrolysis?**

Disaccharide- Maltose

Monosaccharide- Glucose

Intermediate polysaccharide- Dextrins

**Q4. Discuss about the simple test used to detect the presence of starch?**

Iodine solution which is brown in colour forms a blue black complex in the presence of starch thus detecting its presence.

**Q5. What does the clear zone around the bacterial colony indicates?**

A clear zone surrounding the inoculum/bacterial colony indicates that amylase (as exoenzyme) has been released by the colony, which has hydrolyzed the starch in the medium. So the Iodine solution didn't turn blue black in that area thus producing a clear zone. This clear zone indicates positive reaction.

**Q6. After adding iodine on the starch agar plate, what are the observations for a positive and a negative reaction?**

Activity of amylase as an exoenzyme is indicated by a clear zone around the streaking while the rest of the plate gives blue black colour after adding

iodine. This clear zone indicates positive reaction and the medium turning blue black indicates negative reaction.

**Q7. Give an example each of bacteria giving positive and negative reaction in this experiment.**

*Bacillus Cereus* gives a positive reaction and *E. Coli* gives a negative reaction.

**Q8. Name a polysaccharide which can be hydrolysed by amylase?**

Starch