28: Starch Hydrolysis

Objectives

- Identify the reactions associated with growth on a starch agar plate

The enzyme amylase is secreted out of the cells (an **exoenzyme**) into the surrounding media, catalyzing the breakdown of starch into smaller sugars which can then be absorbed by the cells for use. Iodine reacts with starch, producing a deep purple color. As starch is catabolized and converted to sugars, there will be less and less starch to react with the iodine. Strong amylase producers may convert all of the starch in the agar to sugars, while weak amylase producers may convert the starch surrounding the growth areas only.

**MATERIALS NEEDED**

- Gram's iodine reagent (AFTER incubation)
- 1 starch agar plate

**THE PROCEDURE**

1. Make a single line streak of the unknown bacterium across the plate.
2. Incubate at either 25º C or 37º C.
3. **AFTER INCUBATION & GROWTH:** Flood the plate with iodine.
4. Record the results of your bacterial unknown in your journal.

**INTERPRETATION**
Placing the agar plate on a white piece of paper or background will REALLY help you to distinguish the zones. In the presence of the enzyme amylase and subsequent starch hydrolysis around the growth area, there will be a yellow/clearish zone AROUND the growth. In the absence of amylase, the starch will not have been degraded so the medium will just be purple.

QUESTIONS

1. Starch hydrolysis will result in a zone around the bacterial growth that is the color _____. WHY?
2. The enzyme that does this is called ________.

Contributors

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