# Investigation 1: Digesting starch

Aim: To investigate the action of an enzyme found in saliva (amylase) on starch.

## Materials:

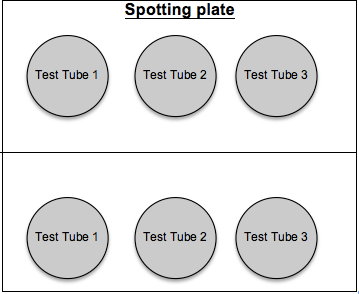
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| --- | --- |
| * 3 test tubes * 1 test tube rack * 1 rubber stopper to fit test tube * 1 x 10 mL measuring cylinder * 3 Pasteur pipettes or droppers * 3 sticky labels or a marker * 1 stopwatch | * 1 spotting plate * 1 dropper bottle of 1% starch solution * 1 dropper bottle of 10 % glucose solution * 1 dropper bottle of 1% amylase solution * 1 dropper bottle of iodine solution * 3 pieces of glucose test tape or test strips |

## Method:

1. Label the test tubes 1–3.
2. Set up the three test tubes as described in the table below.

|  |  |
| --- | --- |
| Test tube | Contents |
| 1 | Half fill the test tube with glucose solution |
| 2 | Half fill the test tube with starch solution |
| 3 | Half fill the test tube with starch solution.  Add 2 mL of amylase solution. |

1. Add a stopper to test tube 3 and shake to mix the amylase and starch solutions.
2. Share the test tubes between the members of your group and hold each test tube in a hand for 10 minutes.
3. After 10 minutes, place a few drops of liquid from test tube 1 into two depressions on the plate. Repeat this for test tubes 2 and 3. See diagram 1.
4. Test samples from each test tube for the presence of glucose and starch.

****Test for glucose

* Place a piece of test tape or dip a test strip into one of each sample.
* Is glucose present? Check the colour against the key on the packaging.

Test for starch

* Add two drops of iodine to each of one sample.
* Is starch present? If starch is present the solution will go blue/black.

1. Record your results.
2. Clean up all the equipment as directed by your teacher.

**Diagram 1:** Solution samples on the spotting plate

## Results:

**Title:** The action of the enzyme amylase on starch

|  |  |  |
| --- | --- | --- |
| Test tube | Present at the beginning | Present at the end |
| 1 | Glucose |  |
| 2 | Starch |  |
| 3 | Starch |  |

## Discussion:

1. What do your results indicate about the action of the enzyme amylase on starch?
2. What is the purpose of including test tubes 1 and 2 in the investigation?
3. What is the purpose of holding the test tubes in your hands?

## Conclusion:

Use your observations from this investigation to explain the change in texture and taste of the bread you ate at the start of this lesson.