**AQA Biology*- SEP ONLY PRAC***

**Required Practical 10- Decay**

**Glossary**

Enzyme

Lipase

pH

Alkaline

Indicator

Fatty acids

***Aims:***

* To investigate the effect of temperature on the rate of decay of fresh milk by measuring pH change.
* To use appropriate apparatus to measure temperature and pH.
* To safely use microorganisms to carry out an investigation.

***Context***:

You will use an alkaline solution of milk. When **lipase** is added to the milk the fat in the milk is broken down into fatty acids. This makes the **pH lower**.

**Cresol red is an indicator that is purple in alkaline solutions of about pH 8.8. When the pH drops below pH 7.2 Cresol red becomes yellow.**

**Variables**- *use the method below to identify the variables.*

**Independent Variable-** The variable I will change is…….

**Dependent Variable-** The variable I will measure is…..

**Control Variables-** Three factors I will keep the same are…

**Risk Assessment**

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| --- | --- | --- | --- |
| **Action/ Equipment** | **What is the risk?** | **How can the risk be minimised?** | **Emergency Action** |
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**Method**

1. Half fill a 250 cm3 beaker with hot water from a kettle.

This is the water bath

1. Label two test tubes

One ‘lipase’

One ‘milk’

1. In the ‘lipase’ test tube put 5cm3 of lipase solution
2. In the ‘milk’ test tube put 5 drops of Creosol red solution
3. Use a calibrated dropping pipette to add 5cm3 of milk to the ‘milk’ test tube

**A calibrated dropping pipette is used to ensure accurate measurement**

1. Use another pipette to add 7cm3 of sodium carbonate solution to the ‘milk’ test tube. The solution should be purple
2. Put a thermometer into the ‘milk’ test tube
3. Put both test tubes into a water bath
4. Use another pipette to transfer 1cm3 of lipase to the ‘milk’ test tube. Start timing
5. Record the colour change to yellow, in seconds.

**Digestion of fat produces fatty acids (and glycerol) that neutralise the alkali, sodium carbonate, lowering the pH and changing the Creosol red to yellow**

1. Repeat at different temperatures

**Results- *Record your results and draw a graph***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Temperature of milk (°C)** | **Time taken to turn yellow (secs)** | | | **Average Time (secs)** |
| **Test 1** | **Test 2** | **Test 3** |
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**Exam Practice**

In compost heaps, dead plants are broken down by microbes.

1. Which three conditions inside compost heaps are needed for microbes to work quickly? (3 marks)

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