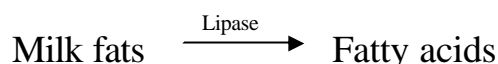


ENZYME ACTION

NAME: Lipase

DESCRIPTION: Cream coloured powder, MC 23.41M

ACTION: The enzyme lipase acts upon fats to break them down into fatty acids.



STORAGE: Store in the refrigerator at 4°C or below. Best results are obtained if a fresh solution is made up just before use.

SAFETY: Enzymes are biologically active proteins and should be handled with care. Avoid direct contact or inhalation.

TIPS FOR TEACHERS:

Suggested pracs:

Full cream milk is a convenient source of fats on which to demonstrate the action of lipase. Place 5mL of full cream milk, (UHT milk works well) in a test tube and add 5mL of 0.05M Na₂CO₃. Add 3 drops of 1% phenolphthalein indicator solution and warm to 37°C in a water bath.

Prepare a 5% lipase solution in cool (room temperature) water and warm 5mL of this solution to 37°C in a separate test tube.

Using a clean pipette, transfer 2mL of lipase solution to the test tube containing the milk, mix well and maintain the temperature at 37°C.

Evidence of lipase action should become apparent within 10-15 minutes as the pH of the mixture decreases and the indicator becomes colourless.

Note: Prepare 0.05M Na₂CO₃ by dissolving 5.3gm of anhydrous sodium carbonate Na₂CO₃ in 1000mL of distilled water.

Comments and further Ideas:

The optimum temperature range for this reaction is 35°C to 40°C.

Investigate a range of milks of varying fat content.

Investigate the addition of bile salts and the effect on the rate of the reaction.

Please note: Variations in substrate composition and enzyme activity can mean that the suggested experiment might not work exactly as described in every situation.