

Biological catalysts, food tests and energy in food

What are carbohydrates, proteins and lipids broken down into?

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What do enzymes build from amino acids?

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Triple only

Test for starch and positive result

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Test for reducing sugars and positive result

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Test for protein and positive result

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Test for fats and positive result

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Triple only

How is the energy in food measured using calorimetry?

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Triple only

Energy released equation (calorimetry)

Proteins. Enzymes also build carbohydrates from sugars and lipids from fatty acids and glycerol.

Sugars, amino acids, and fatty acids and glycerol.

Benedict's solution, heated in a hot water bath. Blue turns green, yellow, orange or brick-red.

Iodine solution. Orange-brown turns blue-black.

Shake with ethanol, then add water. A cloudy white emulsion forms.

Biuret reagent. Blue turns purple (lilac).

$\text{energy (J)} = \text{mass of water (g)} \times 4.2 \times \text{temperature change (}^{\circ}\text{C)}.$

Burn the food to heat a known mass of water. Use the temperature rise to calculate the energy released.