

# Edexcel Biology IGCSE

## 2.9: Food Tests

### Practical notes

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## Food tests

### Aim

Conduct qualitative chemical tests for starch, reducing sugars, proteins, and lipids.

### The Iodine test for starch

#### Equipment

- Food sample
- A test tube
- Iodine solution ( $0.01 \text{ mol/dm}^3$ )
- Pipettes.

#### Method

1. Put some of the food sample into a test tube.
2. Add a few drops of iodine solution to the food sample using a pipette.
3. If starch is present, the solution turns from brown to blue-black. Note any colour change in a table of results.

### The Benedict's test for reducing sugars

#### Equipment

- Food sample
- A test tube
- Benedict's solution
- Hot water bath
- Thermometer
- Pipettes

#### Method

1. Add an equal volume or excess of Benedict's solution to the food sample in a test tube.
2. Place in a hot water bath for a few minutes.
3. If reducing sugar is present, a brick red precipitate is formed. If reducing sugar is absent, the solution remains blue. Note any colour change in a table of results.

### Test for protein

#### Equipment

- A test tube
- A  $10\text{cm}^3$  measuring cylinder
- Biuret solution

#### Method

1. Add a few drops of Biuret's reagent (sodium hydroxide and copper (II) sulphate) to the food sample in a test tube.
2. Shake the solution to mix and wait for a few minutes.
3. If protein is present, the solution turns from blue to purple.



## Test for lipids

### Equipment

- Food sample
- Test tube
- Ethanol
- Distilled water

### Method

1. Add a few cm<sup>3</sup> of ethanol to the food sample.
2. Pour this mixture into a test tube of equal volumes of distilled water.
3. If lipids are present, a white emulsion is formed on the surface of the mixture.
4. This is called the emulsion test.

### Sources of error

Colour change of Benedict's test and Biuret test may be subtle and difficult to judge if the concentration of the tested molecule is low.

### Safety precautions

Tie hair back and wear safety goggles when performing the experiment and be careful when using a Bunsen burner and hot water bath.

Handle Biuret solution with care as it contains copper sulphate (poisonous) and sodium hydroxide, (corrosive). Wash immediately if it is spilt on your skin and wipe away any spills to surfaces.

Keep ethanol solution away from flames as ethanol is highly flammable.

