

COBBE BARRACKS CDSS

HUMAN DIGESTIVE SYSTEM

FOOD TESTS

- Food tests are laboratory procedures conducted on food stuffs to find out the presence or absence of a particular food nutrient.
- Food tests use test chemicals called **reagents**. Examples of common reagents include iodine solution, Benedict's solution, Biuret solution etc.
- Before carrying out a food test on a food sample solid food has to be crushed and then add a little water to form a **food solution**.

TEST FOR REDUCING SUGARS (BENEDICT'S TEST)

- Reducing sugars remove O_2 from Benedict's solution during reaction. Examples include glucose and maltose.

PROCEDURE

1. Prepare a food solution of the food sample.
2. Add 2cm^3 of Benedict's solution to 1cm^3 of the food solution in a test tube.

3. Gently heat the mixture in a water bath at about 80°C for 5 minutes.
4. Observe colour change.

RESULTS

- The mixture changes from clear blue to brick-red colour if a reducing sugar is present.
- The mixture remains blue if reducing sugars are not present.

TEST FOR NON-REDUCING SUGARS (BENEDICT'S TEST)

- Non-reducing sugars include disaccharides such as sucrose and lactose.

PROCEDURE

1. Obtain a food solution containing a non-reducing sugar only such as sucrose in a test tube.
2. Add a few drops of dilute hydrochloric acid to the food solution.
3. Gently boil the mixture for 3-5 minutes to hydrolyse the disaccharide into monosaccharides. Effervescence (fizzing) will occur due to production of CO_2 during reaction.
4. Cool the mixture and then add a few drops of sodium hydroxide solution to neutralize the HCL.
5. Next add 2cm^3 of Benedict's solution and shake well.
6. Heat the mixture in a water bath for 5 minutes.

7. Observe colour change.

RESULTS

- A brick-red colour change indicates presence of a non-reducing sugar.
- Blue colour indicates non-reducing sugars are not present.

TEST FOR STARCH (IODINE TEST)

PROCEDURE

1. Obtain a food solution in a test tube.
2. Add a few drops of iodine solution to the food solution.
3. Observe colour change.

RESULTS

- Blue-black (dark blue) colour change indicates starch is present.
- Orange-brown colour indicates starch is not present.

TEST FOR PROTEINS (BIURET TEST)

METHOD 1

PROCEDURE

1. Obtain 2cm³ of food solution in a test tube.
2. Add 4-5 drops of Biuret solution to the food solution and shake well.
3. Observe colour change.

RESULTS

- Purple or violet colour change indicates proteins are present.
- If mixture remains blue means proteins are not present.

METHOD 2

PROCEDURE

1. Obtain 2cm³ of food solution in a test tube.
2. Add 1cm³ of sodium hydroxide to the food solution.

3. Next add 1% copper sulphate solution drop by drop.
4. Observe colour change.

RESULTS

- Purple or violet colour change indicates proteins are present.
- If mixture remains blue means proteins are not present.

TEST FOR LIPIDS

METHOD 1: SPOT TEST

PROCEDURE

1. Put a drop of food solution or rub a solid food onto filter paper.
2. Leave the paper to dry.
3. Observe paper.

RESULTS

- If a translucent greasy mark remains on the paper it indicates presence of fat or oil.

METHOD 2: EMULSION TEST

1. Mix a food solution with ethanol in a test tube and shake well to dissolve any fat in the food.
2. Pour some water into another clean test tube.

3. Pour a little food mixture into the new test tube of water.

RESULTS

- If the water turns cloudy or milky means fats are present.
- If the water remains clear means there is no fat

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