Food tests

Experiments / Investigations

There are different tests which can be used to detect **carbohydrates**, **proteins** and **lipids** in foods.

StudySmartly
Enriching minds

Carbohydrates

Food test

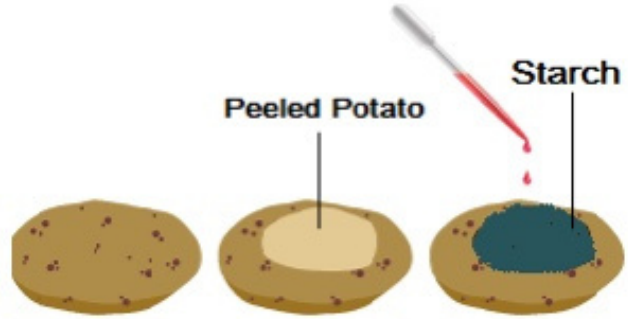
Starch

Aim

To test for the presence of starch in food

Method

1. Place one spatula of the food sample on a dish.
2. Using a dropper, place a few drops of iodine solution onto the food.
3. Record any change in the colour of the solution.



Results/Observations

Iodine solution turns blue-black in the presence of starch

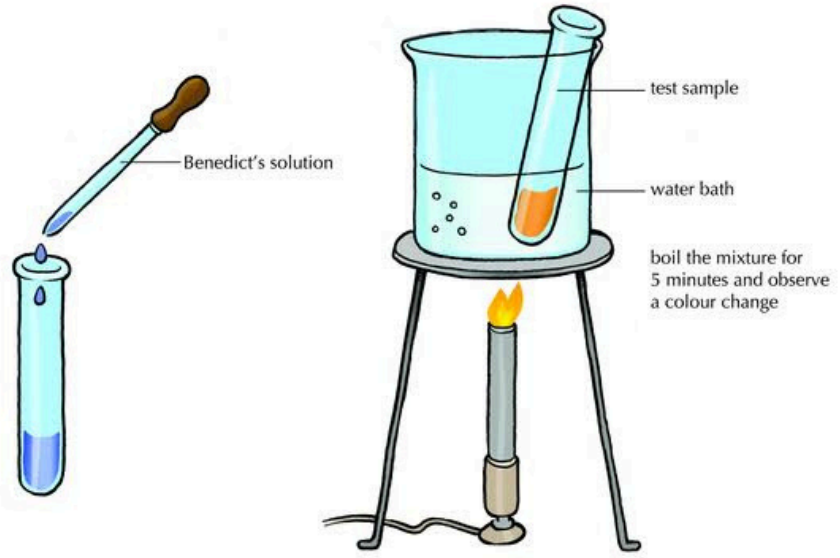
Glucose

Aim

To test for the presence of glucose in food

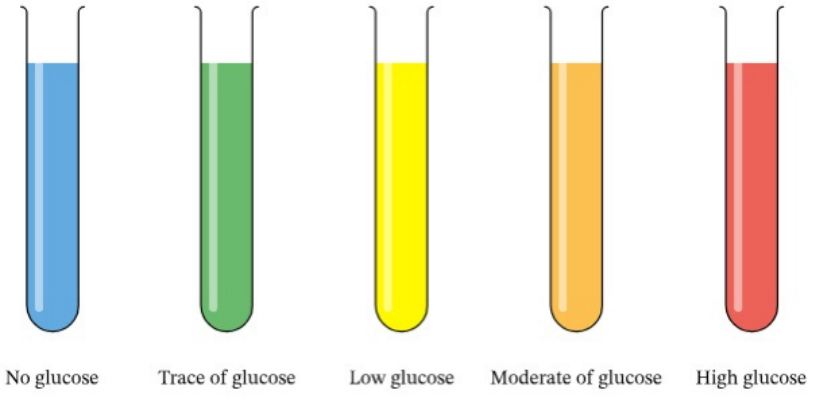
Method

1. Place two spatulas of the food sample into a test tube. Add about 1 cm3 of water into the test tube and mix.
2. Add an equal volume of Benedict's solution and mix.
3. Place the test tube in a water bath at about 95 °C for a few minutes.
4. Record the colour of the solution.



Results/Observations

Benedict's solution gradually turns from blue to cloudy orange/brick red, when heated, in the presence of glucose.



Proteins

Food test

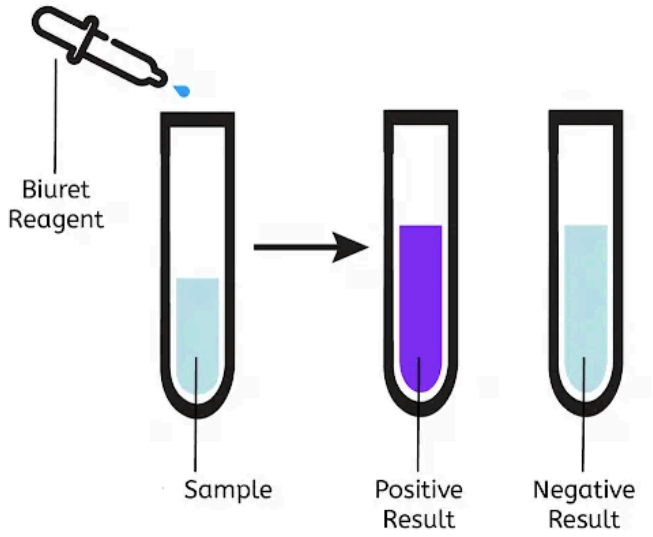
Biuret reagent

Aim

To test for the presence of proteins in food

Method

1. Place one/two spatulas of the food sample into a test tube.
2. Add about 1 cm3 of water to the test tube and stir to mix.
3. Add an equal amount of Biuret solution to the test tube.
4. Stir.
5. Record the colour of the solution.



Results/Observations

Proteins are detected using Biuret reagent. This turns a violet/purple colour in the presence of proteins.

Millions reagent

Aim

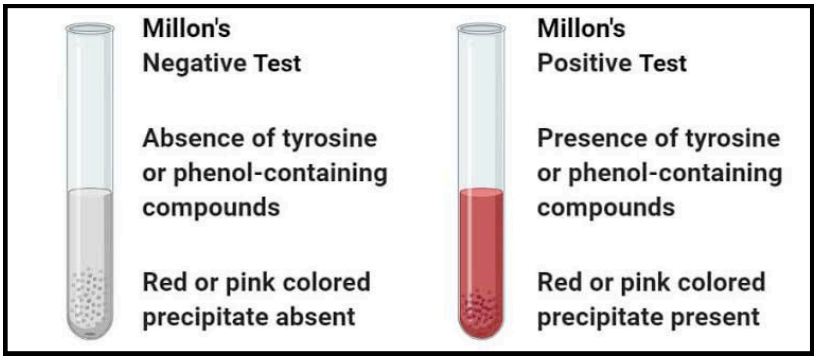
To test for the presence of proteins in food

Method

1. Mix a spatula full albumen / egg white with water in a beaker. Stir the contents using the spatula,
2. Quarter fill test tube T1 with the egg white solution.
3. Using a medicine dropper add 2-3 drops of Million's Reagent to test tube. Gently agitate the test tubes to mix the contents.
4. Place both test tubes in a water bath of approx. 90℃ for a few minutes.
5. Record observations

Results/Observations

Egg white or albumin is comprised mostly of protein. In the Million's reaction the reagent will react with the protein and colour will change to a pink colour showing



Lipids

Emulsion test

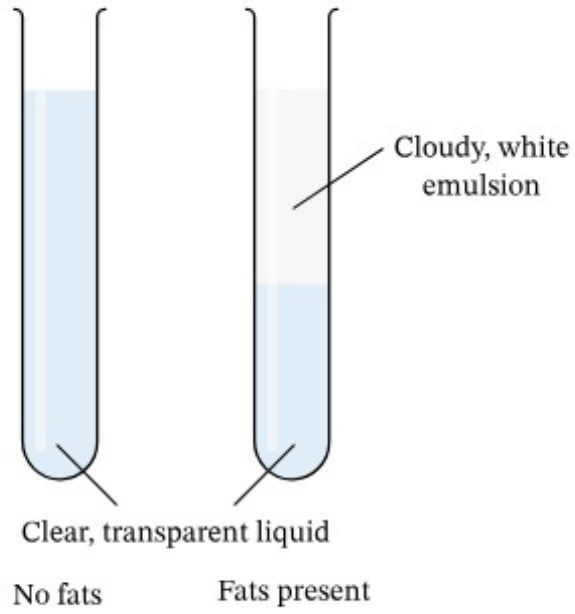
Aim

To test for the presence of lipids in food

Method

Place two spatulas of the food sample into a test tube or 1 cm3 if the sample is liquid.
2. Add 2 cm3 of ethanol to the tube. Cover the end of the tube and shake the tube vigorously.
3. Allow the contents to settle.
4. Pour the liquid from the top of the mixture into a test tube half-filled with water.
5. Record the level of the food and whether the water is cloudy or clear.

Food test



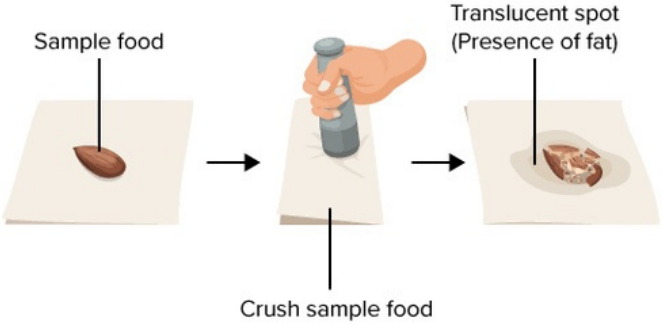
Results/Observations

A milky-white emulsion forms if the test substance contains lipids.

Filter paper

Aim

To test for the presence of lipids in food



Method

1. Add 5ml ethanol in a test tube
2. Using the pestle and mortar crush the peanuts thoroughly.
3. Add the crushed peanuts to test tube. Shake thoroughly until the samples and ethanol are mixed well.
4. Put a drop of the peanuts in the ethanol solution on a piece of filter paper with a clean pipette and let it dry
5. Observe changes in filter paper

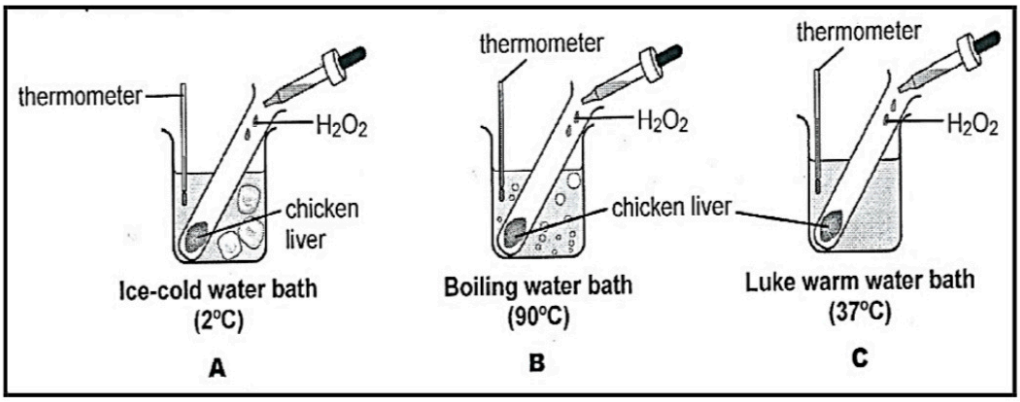
Results/Observations

fats and oils leave behind a grease stain on filter paper. It will appear greasy

Catalase Enzymes Investigation

Aim

determine the effects of different temperatures on the action of the enzyme catalase, found in raw chicken livers.



Method

Set up 3 test tubes. Add chicken livers in each test tube then put hydrogen peroxide and place in a heated water bath.

Test tube A at 2 °C
Test tube B at 90 °C
Test tube C at 37 °C (body temperature)

Results/Observations

No bubbles will form at test tube A and B
Bubbles form at test tube C

Conclusion

Test tube A: catalase will be inactive at extremely low temperatures (2 °C)
Test tube B: catalase become denatured by extremely high temperatures (90 °C) and its action will be negatively affected
Test tube C: Enzyme catalase functions optimally at body temperature of 37 °C

Important to note

Test tube C temperature is the same as body temperature. The optimum temperature for enzyme activity in a human.

Catalase breaks down two molecules of hydrogen peroxide (H_2O_2) into one molecule of oxygen (O_2) and two molecules of water (H_2O)
Bubbles indicate presence of gas(oxygen)