

Simple Method: Testing the Nutritional Content of Oats



Equipment and Materials

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| • Rolled oats (ground into a powder with mortar & pestle/blender) | • Test tubes, droppers or pipettes, test tube rack, safety goggles, gloves |
| • Hot water bath or kettle (for gentle heating) | • Iodine, Benedict's and Biuret solutions |
| • Ethanol (for fat test) | • Distilled water |



Starch Test (Iodine)

1. Place a small amount of ground oats in a test tube.
2. Add a few drops of water to make a suspension.
3. Add 2–3 drops of iodine solution.

Result: Blue-black colour indicates starch.

Reducing Sugars Test (Benedict's)

1. Place a small spoonful of oat suspension in a test tube.
2. Add ~2 ml of Benedict's solution.
3. Heat gently in a hot water bath for 3–5 minutes.

Result: Green → yellow → orange/red shows increasing amounts of reducing sugars (e.g., glucose).

Protein Test (Biuret)

1. Add oat suspension to a clean test tube.
2. Add a few drops of Biuret solution (or sodium hydroxide + copper sulfate if Biuret is unavailable).
3. Mix gently.

Result: Lilac/purple colour indicates protein.

Fat Test (Ethanol Emulsion)

1. Place a small spoonful of oats into a test tube.
2. Add ~2 ml ethanol and shake well.
3. Pour into another tube containing ~2 ml water.

Result: A cloudy white emulsion indicates fat.

Safety notes:

Wear goggles and gloves. Ethanol is flammable and must be kept away from flames.