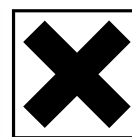


Un oeuf is enough – some properties of egg white

Aims

To investigate some properties of egg white. Egg white contains considerable amounts of a protein called albumin, and so is a convenient source of protein to investigate. You will investigate the effects of changes in pH, temperature, and mechanical stress. You will also perform a test for the presence of protein known as the **biuret test**.



Apparatus

Goggles	Glass rod
Bench mat	Teat pipette
100cm ³ beaker	Sawn-off teat pipette
250cm ³ beaker	An egg* (do not eat!)
4 test tubes	2M hydrochloric acid
Test tube rack	2M sodium hydroxide solution
Bunsen burner, tripod and gauze	0.5M copper(II) sulphate solution

Methods

Effect of pH

1. Carefully break open your egg and separate the egg white from the yolk, making sure that the egg white goes into the 250cm³ beaker. Discard the yolk.
2. Use the sawn-off teat pipette to transfer a small quantity of egg white to a test tube. Add a few drops of dilute hydrochloric acid, shake, and record your observations.
3. Repeat step 2, but add a few drops of sodium hydroxide solution instead of the acid.
4. Transfer a small quantity of egg white to the 100cm³ beaker. Fill with water to approximately 20cm³. Record your observations.

Effect of temperature

5. Gently warm the contents of the 100cm³ beaker, and record your observations.

Biuret test

6. Transfer some egg white to a clean test tube, add an equal amount of water and shake to mix. Add an equal volume of sodium hydroxide solution to your test tube, shake, then add **one drop** of 0.1M copper(II) sulphate solution and shake. Note down your observations (the development of a mauve colour indicates the presence of proteins). Is this test enough – can you think of a control? Check with your teacher if you want to do a control experiment.

Effect of mechanical stress

7. Use the glass rod to vigorously stir the remaining egg white. Record your observations.

Analysis

Explain your observations using your knowledge of the bonding and structure of proteins.