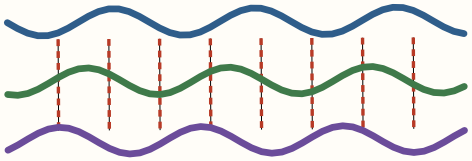
Globular vs Fibrous Proteins and Biuret Test

Collagen is a strong fibrous protein; the biuret test turns blue to purple for protein.

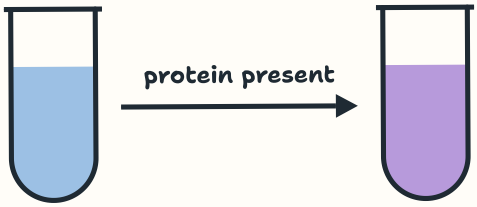
COLLAGEN: fibrous protein



3 polypeptide chains wound like a rope
many hydrogen bonds between them
so strong and insoluble

BIURET TEST

sodium hydroxide, then copper sulfate



stays blue
no protein

turns purple
peptide bonds

Key terms

globular protein	a compact, rounded protein, such as an enzyme or haemoglobin; soluble, with a precise shape.
fibrous protein	a long protein, such as collagen; insoluble and strong.
collagen	three polypeptide chains wound together like a rope, held by many hydrogen bonds.
biuret test	add sodium hydroxide then dilute copper sulfate; the test detects peptide bonds.
positive biuret result	the blue reagent turns purple (lilac) when protein is present.
tensile strength	the ability to withstand a pulling force without stretching, as in a tendon.

I can...

- [ ] Proteins have a variety of functions in all organisms
- [ ] Relate the structure of proteins to properties of proteins named throughout the specification
- [ ] The biuret test for proteins

EXAM TRAP

A positive biuret result is purple, not red or pink.
Biuret detects peptide bonds, not amino acids.
Always link the structure to the property.

4 marks: what earns them

1. Three polypeptide chains wound together (like a rope / triple helix) with many hydrogen bonds between them
   Not: one long chain; covalent or peptide bonds hold the chains
2. So it is strong, able to withstand a pulling force / not stretch ("and insoluble" is optional; mark 2 can be gained if the link to the structure in mark point 1 is made in either order)
   Not: collagen is strong (no link to the structure)
3. Add sodium hydroxide, then (dilute) copper sulfate solution
   Not: copper sulfate only; Benedict's reagent; heat
4. Blue to purple / lilac (so protein is present); reference to peptide bonds is not required
   Not: red, pink, brick red; detects amino acids

Remember

Globular: round, soluble, specific.
Fibrous: long, insoluble, strong.
Biuret: blue to purple.

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