

Biological molecules and enzymes

Which elements are in carbohydrates and lipids?

Biological molecules and enzymes

Which elements are in proteins?

Biological molecules and enzymes

What are starch and glycogen made from?

Biological molecules and enzymes

What are proteins and lipids made from?

Biological molecules and enzymes

Food test for glucose?

Biological molecules and enzymes

Food test for starch?

Biological molecules and enzymes

Food test for protein?

Biological molecules and enzymes

Food test for fat?

Carbon, hydrogen, oxygen and nitrogen,
and sometimes sulfur.

Carbon, hydrogen and oxygen.

Proteins: amino acids. Lipids: fatty acids
and glycerol (three fatty acids to one
glycerol).

Many simple sugars (glucose) joined
together.

Add iodine solution. Orange-brown turns
blue-black.

Add Benedict's solution and heat in a water
bath. Blue turns green, yellow, orange or
brick-red.

Shake the sample with ethanol, then pour
into water. A cloudy white emulsion shows
fat is present.

Add biuret reagent. Blue turns purple (lilac).

Biological molecules and enzymes

What is an enzyme?

Biological molecules and enzymes

What is the active site?

Biological molecules and enzymes

Why are enzymes specific?

Biological molecules and enzymes

Why does the rate rise with temperature up to the optimum?

Biological molecules and enzymes

What happens to an enzyme above its optimum temperature?

Biological molecules and enzymes

How does pH affect an enzyme?

Biological molecules and enzymes

Practical: how do you show when amylase has digested all the starch?

The region of an enzyme with a shape complementary to its substrate, where the reaction takes place.

A protein that acts as a biological catalyst, speeding up metabolic reactions without being used up.

Particles have more kinetic energy, so enzyme and substrate collide more often.

Only a substrate with a shape complementary to the active site can fit, so each enzyme catalyses one type of reaction.

Away from the optimum pH the shape of the active site is altered, so the rate falls. At extreme pH the enzyme is denatured.

The shape of the active site changes, the substrate no longer fits and the enzyme is denatured.

Test samples with iodine solution. When it stays orange-brown and does not turn blue-black, the starch has gone.