

Enzymes and jellies

Jellies are made from gelatine. When it is dissolved in hot water and allowed to cool, gelatine forms a three dimensional network of molecules that holds water rather like a sponge. Party jellies are just gelatine with added sugar, fruit flavouring and colouring.

Many people like to add fruit to jellies but you will not be able to make jellies with certain fresh fruit such as pineapple, kiwi fruit or papaya – the jelly will not set. Jelly packets usually have a warning about this in the instructions. However, tinned versions of the same fruit can be added and the jelly will set without difficulty.



Some fruits prevent jelly from setting

Your task is to find out as much as possible about this apparent mystery.



What effect do pineapple, kiwi fruit, guava and papaya have on the setting of jelly?

Method

You will need to plan your experiment and check with your teacher before starting. It is important not to change more than one thing at a time and to ensure that your experiment is a fair test.

There are two basic methods.

1. Make the jelly according to the instructions on the packet but in some cases replace some of the water in the recipe with pureed fruit. You will probably need to scale down the quantities for economy.

-
2. Make some jelly in a petri dish and let it set (your teacher may provide you with this). Place drops of pureed fruit on the jelly and observe any effect over a period of several minutes. You can try several fruits on the same dish of jelly but make sure you record which drop is of which fruit.

What you will need

Apparatus and equipment

Your group will need:

- dishes in which to set the jelly – petri dishes would be suitable
- measuring jugs or cylinders
- test tubes or beakers in which to heat the fruit puree
- means of heating the fruit puree – water bath or Bunsen burner, tripod, gauze and heatproof mat
- access to a kettle and/or microwave oven
- access to a food processor to puree the fruit
- access to a fridge/freezer.

Chemicals

Your group will need:

- party jelly cubes
- tinned pineapple
- fresh pineapple
- other fruits such as papaya, kiwi fruit, apple *etc.*



Safety

- Wear eye protection.
- Make sure that you follow the hygiene precautions that your teacher explains to you.
- Take care with boiling water.