

Tips for Conducting Food Tests

Conducting food tests is not difficult but in this post, I will highlight some tips for you to easily complete the food test component of your practical (with full marks, hopefully!) so you can focus on the more challenging components (like planning?).

In the past 2 years, the food test component was not tested in the pure Biology end of year practical exam. However, this component is almost a sure-hit for Science Biology practical exams, and with the short duration of an estimated 45 minutes to complete the Biology section, these *just* might help you save a couple of minutes.



Learn the reagents, steps and expected observations well.

Sometimes, in the Science (Biology) practical exams, you are required to briefly describe the steps involved in the food tests you are conducting. Often, though, a table like the one below (Source: 5118/05/O/N/11 paper) is provided and you are only required to write the names of the reagents used so, learn

them well and the marks (usually a total of between 2 to 6 marks) will be yours. I have uploaded a one-page handout for **Food Tests** under the [Resources](#) section which you can download for your reference. Alternatively, I've also shared it in my [Telegram](#) channel for easy access on your mobile.

reagent used	result of test	food substance contained

Test for Starch

Super easy test to conduct. Some things to take note of:

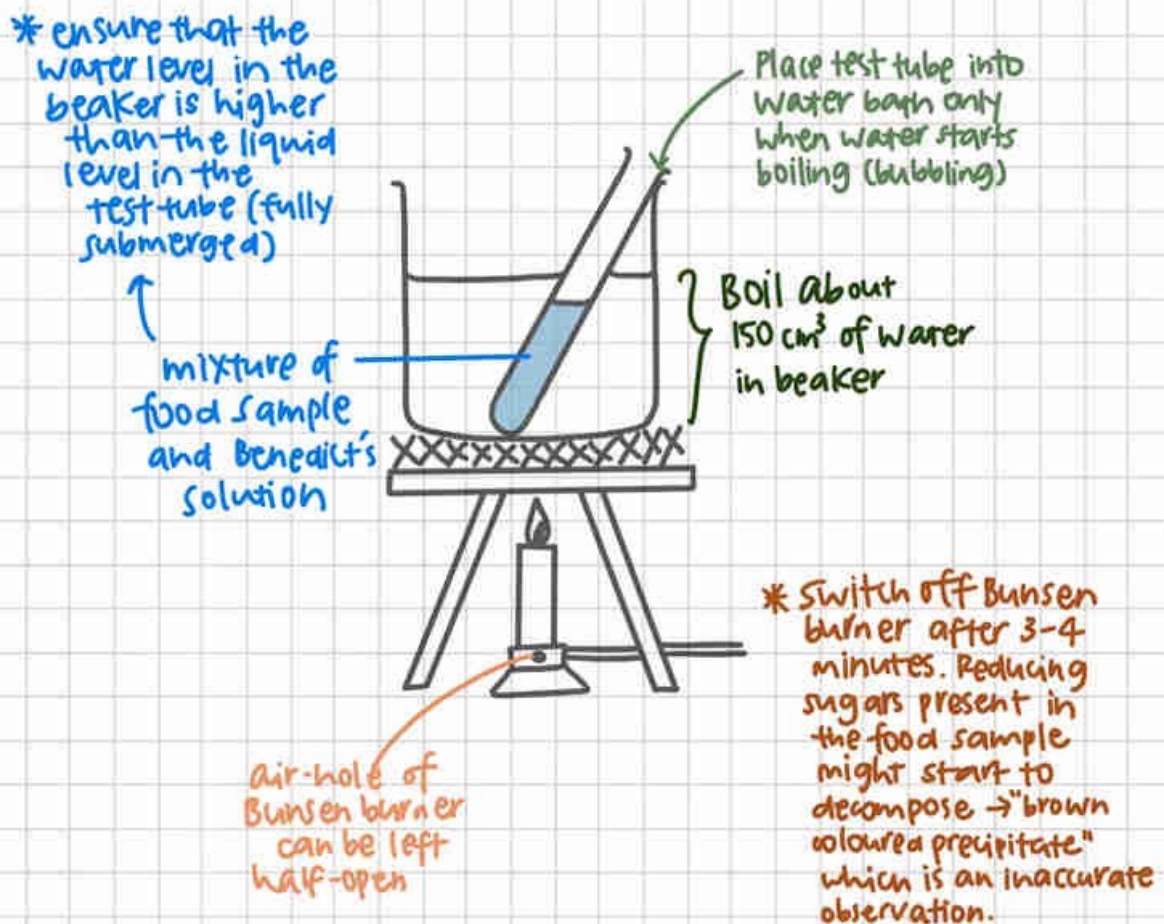
- Only **two** drops of iodine solution needed.
- And yes, it's iodine **solution**, not just iodine. Do remember that.
- Use the white tile provided if it is a solid piece of food sample.
- The colour is **blue-black**, not dark blue/black or any of the other 49 shades of blue.

Test for Reducing Sugars

This is my favourite food test to observe cos' it yields so pretty **colours**! But also a test which I know many students find bothersome cos' "*have to prepare boiling water...*". This test has a number of things I want to highlight and is the main reason for this entire post. I've annotated the points in the diagram below so it's easier to follow.



suggested set-up for reducing sugars test



Some things I want to highlight:

- Do not forget that a **precipitate (ppt)** is formed and must be written in the observation. Many students tend to write "mixture turns brick-red" without the mention of the precipitate.
- Short-form for precipitate is **ppt** but remember to spell the entire word "**precipitate**" at least once (the first time you use the word) before you use **ppt** in the rest of your answer. An example would be in the point above.
- If you have to conduct this test, it would be ideal to start boiling the water before you prepare the food sample so that by the time your sample in the test tube is ready, the water is already bubbling.

- I have also included in the diagram above, that the ideal volume of water to use in the water-bath is 150ml. After looking at so many students conduct this test for years, I realised that if **more than 150ml** is used, the water takes a bit longer to boil and the student will be sitting there just waiting and watching for bubbles to appear. And when it finally boils, she (in today's post, for simplicity's sake, the student will be a "she") places 3 test tubes in there, but the boiling water threatens to spill over because there's just too much water in the beaker. And if **less than 150ml** of water is used, the water level is not enough to submerge the liquid level in the test tube. So, keep it to 150ml.

Test for Proteins

For this test, there is another way besides the one I've indicated in the resource handout. The simpler method is to just **add 2ml of Biuret solution to 2ml of food sample and shake**. The Biuret solution is a pre-mixed solution made up of sodium hydroxide, copper (II) sulfate and potassium sodium tartrate (no need to know this but it is to maintain the solubility of copper (II) ions in alkaline solution). We don't usually pre-mix it for the students during practice sessions but it'll be good to know the above method as well, just in case.

In the *usual* method, we add copper (II) sulfate solution, dropwise, after adding 1ml of sodium hydroxide solution into 2ml of food sample. Do remember to **shake the test tube after every drop you add in**. The colour should change to **violet** within **five drops** if protein is present and if it doesn't, it is likely that it just doesn't contain any protein, so there's no need to add and add like a total of 20 drops...!

Test for Fats

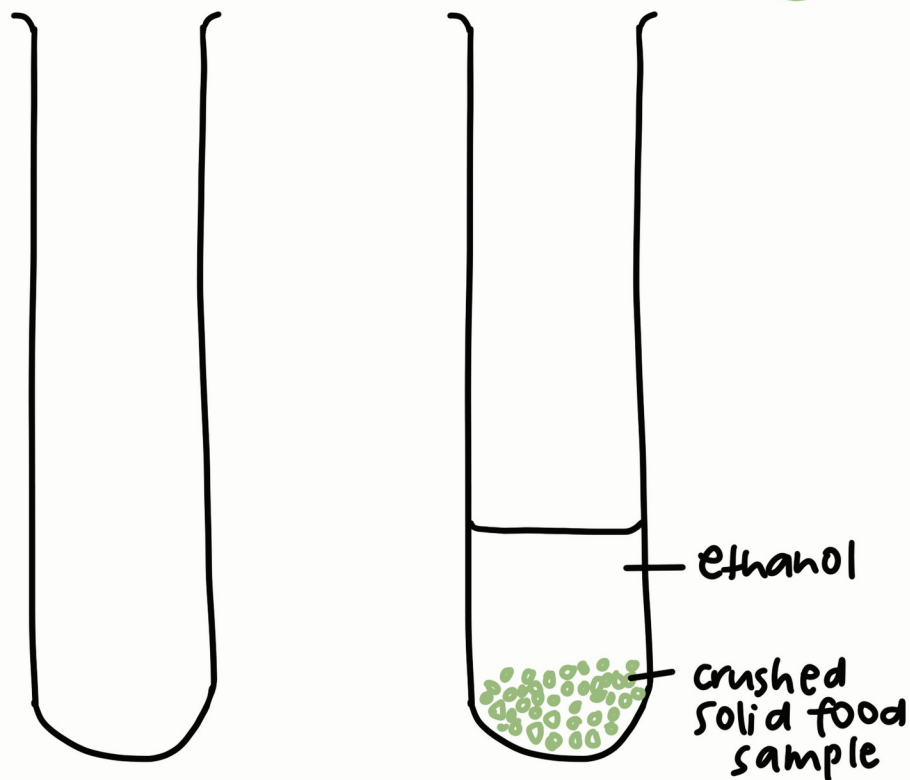
The ethanol-emulsion test is fairly simple to do. Follow the steps and do use a **dry** test tube at the start of the test.

There are additional steps to take if the **food sample is solid**.

- Crush/Cut the solid food sample into small pieces using a mortar and pestle/scalpel and white tile (whichever are provided) respectively.

- Place the crushed food into a test tube and add about 2ml of ethanol. Shake the test tube.
- Decant the ethanol into another test tube. (see gif below)
- Add 2ml of distilled water into the decanted ethanol and record your observations.

Decanting



And that's it for food tests. I hope you find these notes helpful for the upcoming practical exams! Continue to persevere and revise!