Delegate Exercise 6

Candidate 1

(a) I would take care with the plant tissue and gibberellic acid as they could be harmful. I would also make sure that I was always cutting away from the body with the scalpel.

(b) I would test a broad range of gibberellin concentrations to give a rough idea of the ideal concentration to use. I would also check the best pH to use by adding different buffer solutions and testing the rate of pollen tube growth.

(c) I would soak seed grains in a range of concentrations of gibberellic acid. I would then make up a series of starch agar plates and put the seeds onto the agar. I would place the plates into an incubator at 37°C for 24 hours. After the 24 hours, I would open the plates and pour on iodine solution. The iodine solution will show where the starch has been digested. I will measure the radius that is not black three times and calculate the mean width – the wider the area, the more active the amylase and this means that more amylase is produced. I will repeat this for all the seeds that have been placed into different concentrations of gibberellic acid.

Candidate 2

(a) Starch agar plates could grow microbes – I will make sure that everything is sterilised. I will also ensure that I wear safety glasses as some of the solutions could be harmful.

(b) I will see how easy it is to cut open the seeds to find the endosperm tissue. I would also test how long it takes for the amylase to digest starch in a test tube to see how long we need to leave the experiment for.

(c) I would pour six starch agar plates into Petri dishes. I would then make up five different concentrations of gibberellic acid by taking a 1 % stock and diluting them down with distilled water (I would use a 10 cm3 syringe) to make solutions with concentrations of: 0.2 %, 0.4 % , 0.6 %, 0.8 % and 1.0 %. I will then place three wheat seeds into each of the concentrations in test tubes and also place three into distilled water as a control. After soaking the seeds for 24 hours, I will place the seeds onto the agar and then place them into an incubator at 37 °C. To test how well they have digested the starch, I will cover the plates with iodine solution. Using a 10 cm ruler, I will measure the diameter of each of the clear zones for each seed.