Measuring the vitamin C content of foods and fruit juices

Objectives

* to set out a hypothesis about the vitamin C content of the juice you are testing
* to measure the vitamin C content of different juices
* to consider the reliability and validity of the results
* to evaluate the original hypothesis in the light of the results
* to consider how to improve the procedure

### Procedure

SAFETY: Take particular care with fragile glassware such as burettes.The solutions to be used are low hazard.

NOTE: The solutions may stain your skin and clothes so protective clothing will be useful.

### Investigation

1. Pipette 2 cm3 of the juice or vitamin C solution into a test tube.
2. Using a graduated pipette or a burette, add 1% DCPIP drop by drop to the vitamin solution. Shake the tube gently after adding each drop. Add DCPIP until the blue colour just disappears.
3. Record the exact amount of DCPIP solution that was added.
4. Repeat the procedure and calculate an average result.
5. Repeat with the juice to be tested. If the juice decolourises a large volume of DCPIP, dilute the fruit juice and repeat the test. If the juice has a strong colour that will interfere with determining the end point, dilute the juice before testing.
6. Calculate the amount of vitamin C in the standard solution in mg cm-3. Calculate how much vitamin C there is in each of the fruit juices in mg cm-3.

### Reporting on your investigation

* State the hypothesis you have decided to investigate.
* Describe how you have carried out the work.
* Present your results in an appropriate way.
* Discuss what your results tell you about the question under investigation.
* Comment on any systematic or random errors in the data.
* Propose changes that would improve the reliability and validity of the results.