

Extracting the Purple from Grapes

What is in grapes?

Grapes are a great source of **polyphenols** (alongside lots of other nutrients), and what we extract from the grapes will be a big mixture of different ones. Many polyphenols, like anthocyanin, contribute towards the colour of the grape, but are also thought to have benefits for health*.

Ingredients

- grapes
- surgical spirit - this contains ethanol, in which polyphenols dissolve
- distilled or deionised water (normally found in garages, petrol stations, hardware shops)

Equipment

- DIY visible light spectrometer (e.g.: Public Lab Desktop Spectrometer v3) or can be built from an Open Hardware design (soon to be available on <http://vital-food.org>)
- strong glass or LDPE containers
- spoon / chopsticks
- some way of measuring out 25-50 ml of liquid
- this could be a measuring jug, measuring cylinder (or a scale at a push, if you're prepared to do the required weight to volume calculation)
- glass or plastic funnel
- filter papers
- measuring scale
- glass cuvettes or small glass vials (preferably square) - you can get away with just one but having 2 is easier

Risk Assessment

Ethanol

highly flammable

- Wear gloves
- Wear eye protection
- Cover clothing
- No naked flames
- Use well ventilated room

Surgical Spirit

As ethanol



* Today's Dietitian (2014) Vol. 16 No. 3 P. 20

What to do to extract lycopene

1. Measure 5g grapes
2. Mash the grapes in a pestle and mortar
3. Mix grapes with an equal measure of surgical spirit
4. Stir intermittently over the next 5 minutes
5. Filter the (now purple) liquid
6. Take the filtrate (the liquid part)
7. Analyse filtrate using DIY Spectrometer immediately (See separate sheet)
8. Repeat steps 3-7
9. Compare results from first and second wash

