*Polysaccharides: Quantitative analysis

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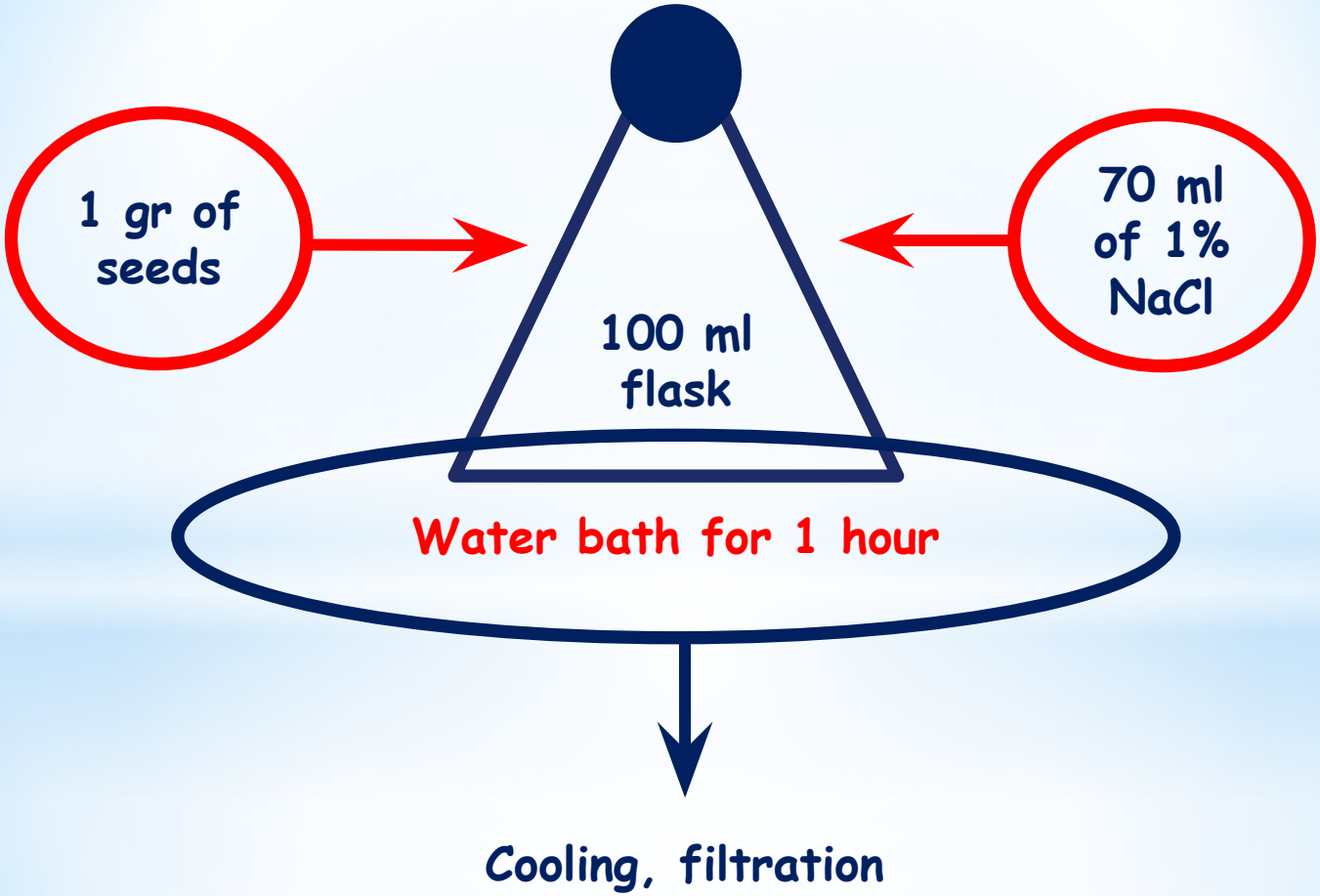
Method: Dreywood's method of spectrophotometric identification

Object: *Linum usitatissimum L.* seeds

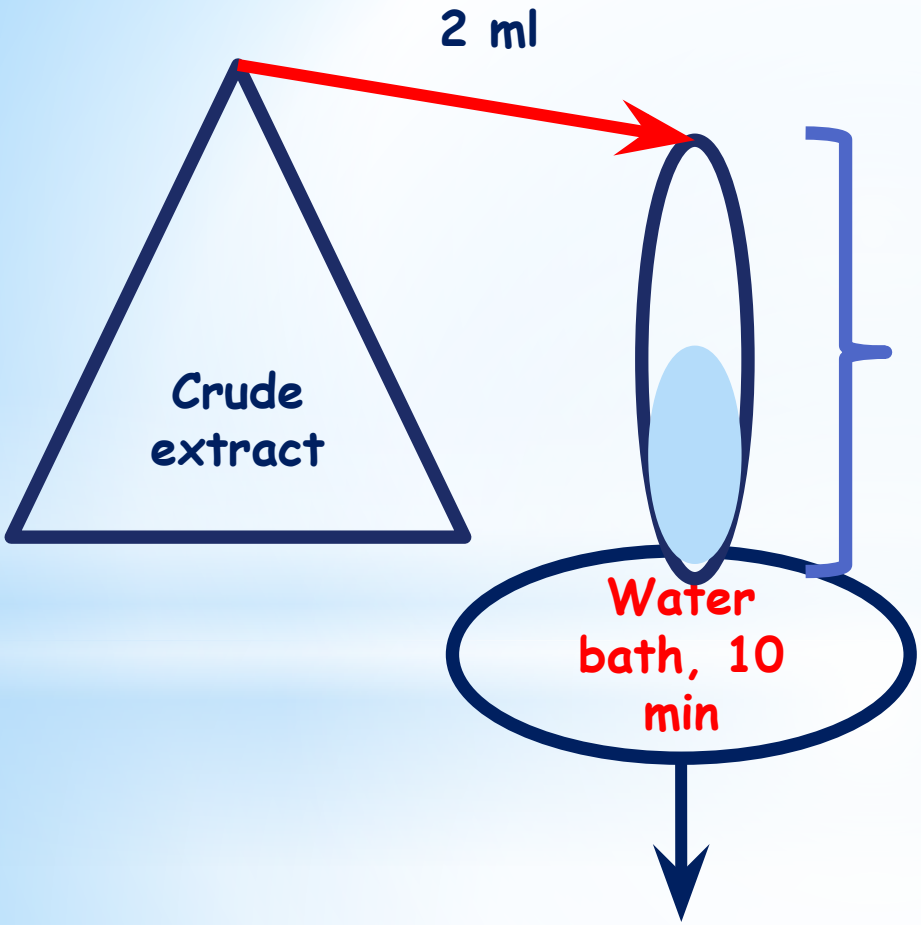
Steps:

1. Extraction
5. Measurement of density by spectrophotometry
6. Drawing the curve (density/concentration)
7. Calculation of polysaccharides amount in relation to xylose

1. Extraction

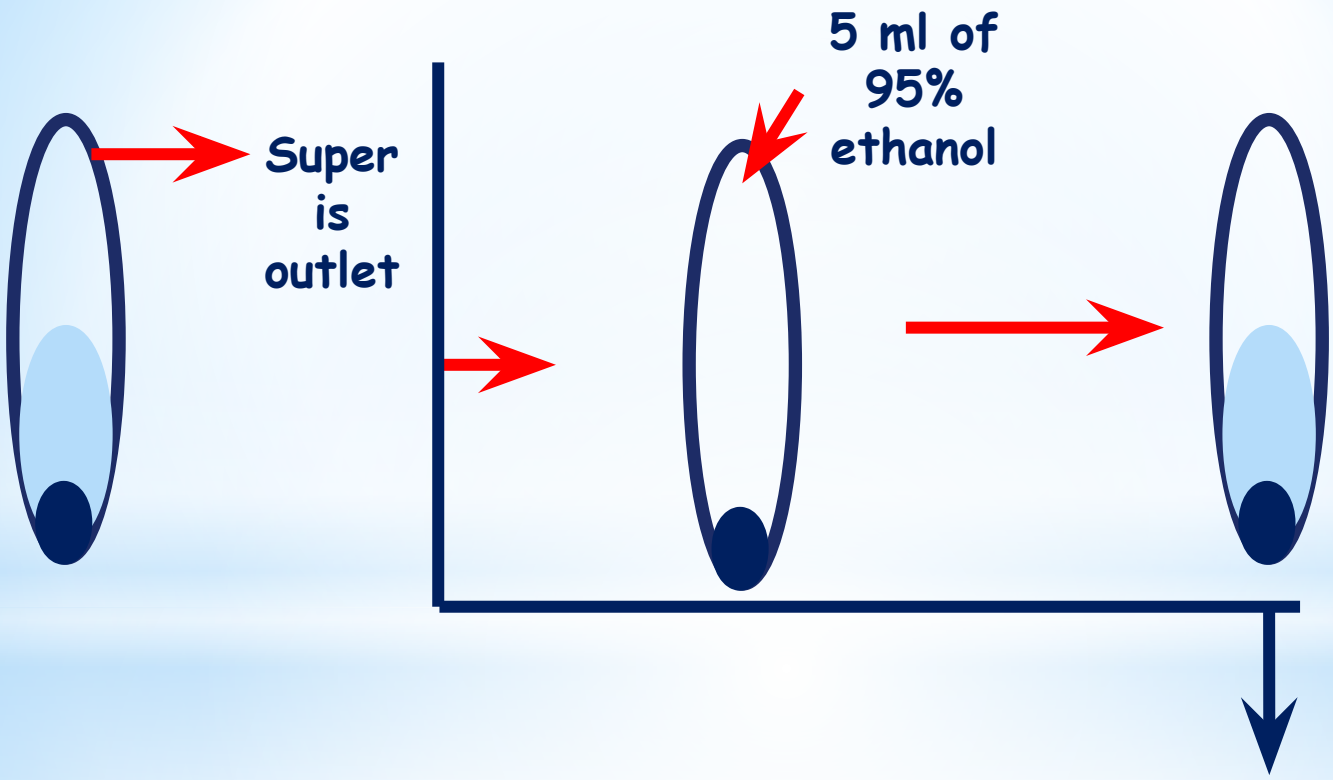


1. Extraction



Cooling, centrifugation for 10 min, 3000 rpm

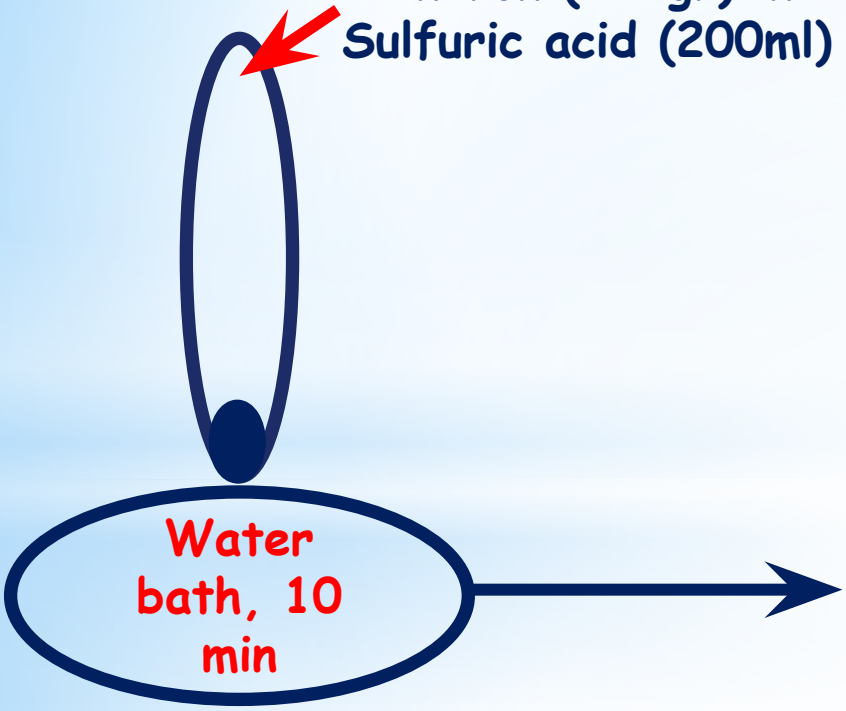
1. Extraction



Centrifugation for 10 min, 3000 rpm
Drying of precipitate

1. Extraction

4 ml Reactive Andron (100gr) in Sulfuric acid (200ml)



Cooling

Then solution if poured into the 25 ml flask and the volume (25 ml) is reached by 95% ethanol

2. Measurement of density by spectrophotometry

Optical density measurement is provided in 10mm cuvets

Wavelength – 430nm

Reference – 4ml of reagent (antron +H_2SO_4) which pass the same conditions, provided for sample

3. Calibration curve (density/concentration)

Calibration curve is drawn due to relation of density with known concentration of xylose. All conditions and steps are the same as for the samples.

4. Calculations

Amount of polysaccharides is calculated (X%) in relation to xylose and absolutely dry yield is calculated by following formula.

$$X = \frac{c \cdot k^V \cdot 0.91}{m \cdot 10^6} \cdot \frac{100}{100 - W} \cdot 100,$$

Where, **c-** concentration of xylose found in calibration curve (mkg/ml); ***kV*** – diffusion coefficient (2500); **0,91** – hydrolysis coefficient; 10^6 –coefficient of recalculation of mg into mkg; ***m*** – weight of initial seeds (g); ***W*** –loos of weight due drying of sample, %.

Conclusion

This method if considered to be standard for quantitative analysis of polysaccharides of plant nature. The advantage is the availability of reagents and simplicity Disadvantage is the being time consuming, and need a lot of manipulations.