

Introduction to investigation:  
Background to Aspirin and aims of laboratory work

Information - *Known*

Information - *Unknown*

Amount of active ingredient according to packaging  
Packaging states Aspirin as active ingredient  
Aspirin is acetyl salicylate derived from salicylic acid

Is the packaging correct ?  
Is there more than one active ingredient ?  
If 'Yes', what are their relative amounts?

Session 1 activity

Simple extraction  
Chemical tests for salicylic acid & starch (tablets, extracts, SA)

Gravimetric determination of yield  
Reference 'colour' for SA test  
Probable presence of some SA in extract/tablet

Is the extraction method quantitative ?  
Is the extraction method selective?  
Detailed chemical composition of extract

Session 2 pre-lab

Find alternative extraction method  
Find titrimetric method for determining composition of extract

Session 2 activity

Soxhlet extraction and titration of extract  
Chemical tests for salicylic acid and starch

Gravimetric determination of yield  
Titrimetric analysis of extract (yield)  
Majority of extract contains  $-\text{CO}_2\text{H}$   
Chemical tests suggest 'some' salicylic acid  
Starch in residue

No positive test for acetyl salicylate  
Relative amounts of AS and SA (titration not selective)  
Any degradation during extraction

Sessions 3/4 pre-lab

Find methods for analysis of mixtures of SA and AS  
Find reference data for SA and AS (IR, M.Pt.)

Sessions 3/4 activity

Analysis of GC data for SA and AS  
HPLC analysis of extracts and standards  
M.Pt., IR and functional group tests for extract

Final conclusions

Determination of absolute and relative amounts of AS and SA  
Comparison of data with packaging, etc

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