

## **Comparison of the active ingredient and purity of two different commercial Aspirin tablets**

### **Technical Requirements**

#### **Session 1:**

For each pair:

- 3 tablets of Aspirin A (2 for extraction, 1 for chemical tests)
- 3 tablets of Aspirin B (2 for extraction, 1 for chemical tests)
- Ethanol for the extraction– minimum of 40 cm<sup>3</sup>
- 50 cm<sup>3</sup> conical flask, 100 cm<sup>3</sup> beaker, spatula, filter paper, funnel, stirring rods
- Steam bath + hot plate (suggest 5 for class of 30)
- Small (e.g. 50 cm<sup>3</sup>) bottles of ferric chloride reagent
- Small (e.g. 50 cm<sup>3</sup>) bottles of iodine – KI reagent
- Test tube/boiling tubes + rack (10-12 tubes)
- A range of common solvents. e.g: chloroform, dichloromethane, hexane, dilute HCl, methanol, diethyl ether, petroleum ether, ethanol, acetone
- A range of glassware/equipment which may/may not be used: funnel, conical flask, separating funnel, filter paper, beakers, graduated/bulb/Pasteur pipettes, round bottomed flasks, condensing tube, Hirsch flask, rubber tubing. Bunsen burner.

#### **Session 2:**

For each pair:

- 8 Aspirin tablets (7 for extraction, 1 for chemical tests)
- 1 Soxhlet apparatus
- Ethanol (at least 150 cm<sup>3</sup>)
- Rotary evaporators
- Distilled water bottle
- Sample vials and labels
- Phenolphthalein indicator
- NaOH for titration (0.1M): allow 50 cm<sup>3</sup> per pair
- Test tube/boiling tubes + rack (10-12 tubes)
- Small (e.g. 50 cm<sup>3</sup>) bottles of ferric chloride reagent
- Small (e.g. 50 cm<sup>3</sup>) bottles of iodine – KI reagent

### **Session 3:**

#### **Chemical tests :**

- Test tube/boiling tubes + rack (10-12 tubes)
- Water baths

#### ***nitro group***

- 5% w/v solution of titanous chloride in dilute HCl – 20cm<sup>3</sup> per group
- Acetone

#### ***primary amine group***

- Concentrated HCl [*in fume cupboard*]
- Box of Pasteur pipettes + bulbs
- concentrated sodium nitrite, starch - iodide paper, 25 mg cm<sup>-3</sup>  
β-naphthol in 10% w/v sodium hydroxide solution

#### ***carbonyl group***

- Methanol
- Brady's Reagent

#### ***alcoholic hydroxyl group***

- Chloroform
- Acetyl chloride [*in fume cupboard*]
- Litmus paper

#### **Other:**

- Melting point apparatus and capillary tubes
- Infra-red spectrometer
- HPLC instrument (60/40 v/v methanol/water : allow 10 cm<sup>3</sup> per pair)
- GC chromatograms of purified acetyl salicylate and salicylic acid.
- HPLC chromatograms of acetyl salicylate and salicylic acid standards – 0 mM, 1 mM, 2 mM, 3 mM, 4 mM.
- HPLC chromatogram of Aspirin in CH<sub>3</sub>OH/H<sub>2</sub>O (60/40 v/v)

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