

SAMPLE LAB REPORT

THINGS TO BE WRITTEN ON RULED PAGES

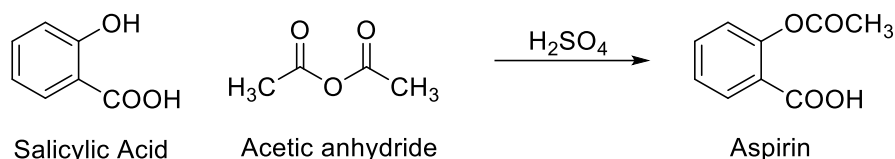
Aim/Objective: To Synthesize Aspirin

Apparatus Required: Conical flask, measuring cylinder, beaker, glass rod, filter paper and other general glassware

Chemicals Required: Salicylic acid, acetic anhydride, Conc. Sulfuric acid, ethanol, methanol and FeCl_3

Principle: Preparation of the derivative of a functional group compound. Here, phenolic hydroxyl group in salicylic acid is esterified with acetic anhydride in the presence of an acid catalyst, i.e. H_2SO_4 to obtain aspirin, a well-known drug that is used to treat patients with cardiovascular disease. It also works as an analgesic and antipyretic.

Reaction:



Precautions:

1. Dry conical flask should be used for salicylic acid.
2. Measuring cylinder should be used for acetic anhydride.
3. Conc. H_2SO_4 should be used with care.
4. Care should be taken to isolate crystals of aspirin as far as possible.

Procedure:

Salicylic acid (2.0 g) supplied in a packet was transferred into a 150 mL conical flask. To this was added 3.7 mL of acetic anhydride followed by a few drops (5-6) of Conc. H_2SO_4 . The contents were shaken until all the salicylic acid dissolved. After 20 minutes, 50 mL of water was added to the flask, and was swirled for 2 minutes. The colorless product formed was filtered.

Recrystallization:

The crude product obtained above was dissolved in 7 mL of ethanol in a beaker. To this was added 15 mL of distilled water. The contents were heated until a clear solution was obtained. This solution was left undisturbed for 15 min and cooled subsequently. The crystallized pure material was filtered, dried and weighed.

Validation of Purity:

A few crystals of the compound contained in a test tube were dissolved in 0.5 mL of methanol. A few drops of FeCl_3 solution were added to this solution. No purple coloration was observed, which suggests the absence of salicylic acid as an impurity. The same test was carried out for salicylic acid. In this case, strong purple coloration was observed upon addition of FeCl_3 solution.

As a characteristic physical property, melting point of the pure compound was determined.

Results:

1. Weight of the pure aspirin obtained: x.xx g
2. FeCl_3 test for phenolic impurity in the synthesized aspirin: Negative
3. Melting point of the compound: xxx.x – xxx.x Degree Celsius (a range of 2-3 degrees)

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Calculations:

$$\text{Percentage Yield} = \frac{\text{Amount of recrystallized product obtained}}{\text{Theoretical Yield}} \times 100$$

Show calculations for how you obtained the 'Theoretical Yield'.

Mechanism:

