

Organic Chemistry

Lab /2

Synthesis of aspirin

by

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Aspirin



Definition

- aspirin is a medicine that relieves pain and reduces fever.
- Europe in 1899.
- German chemist named Felix Hoffman as a treatment for his fathers arthritis.



-It was found that extract from willow bark was useful in reducing pain and fever



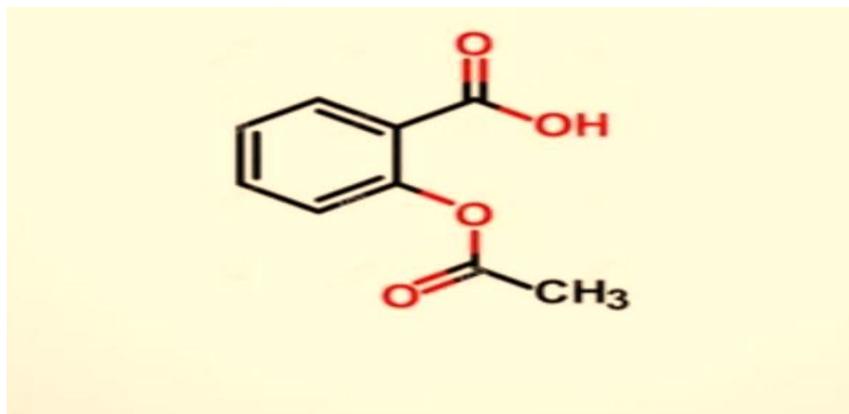
Aspirin is NOT advised for some groups without medical advice :

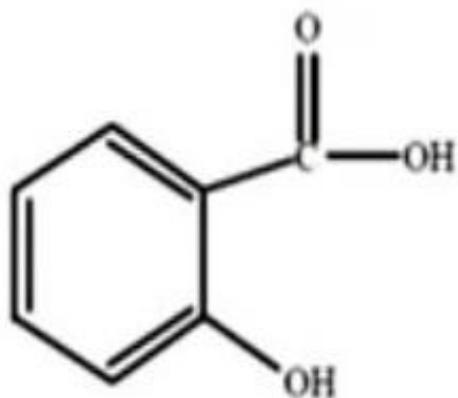
- Children under 16
- Asthmatics
- Women in the last trimester of pregnancy
- Heavy alcohol drinkers
- People with bleeding disorders.



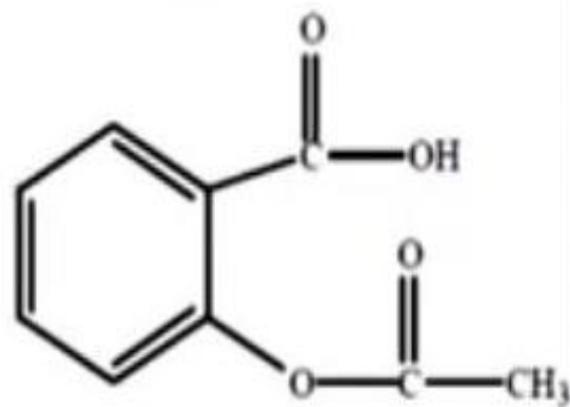
the purpose of the experiment

Synthesis Of Aspirin





Salicylic Acid
 $C_7H_6O_3$



Acetylsalicylic acid (aspirin)
 $C_9H_8O_4$

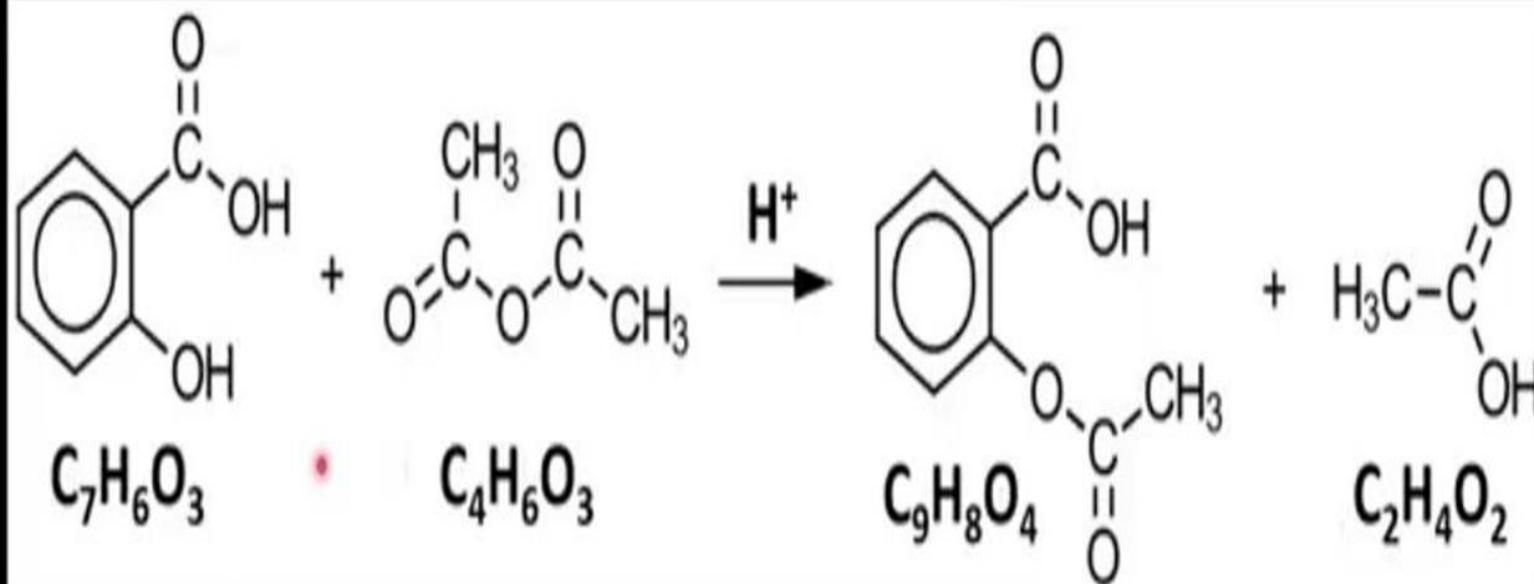
Aspirin has very low solubility in cold water, so this process removes the soluble acids but not the aspirin.

The aspirin is purified in a process known as recrystallization; this involves dissolving the impure crystals in a small volume of hot ethanol.

Water is then added and the solution is cooled slowly and then chilled.

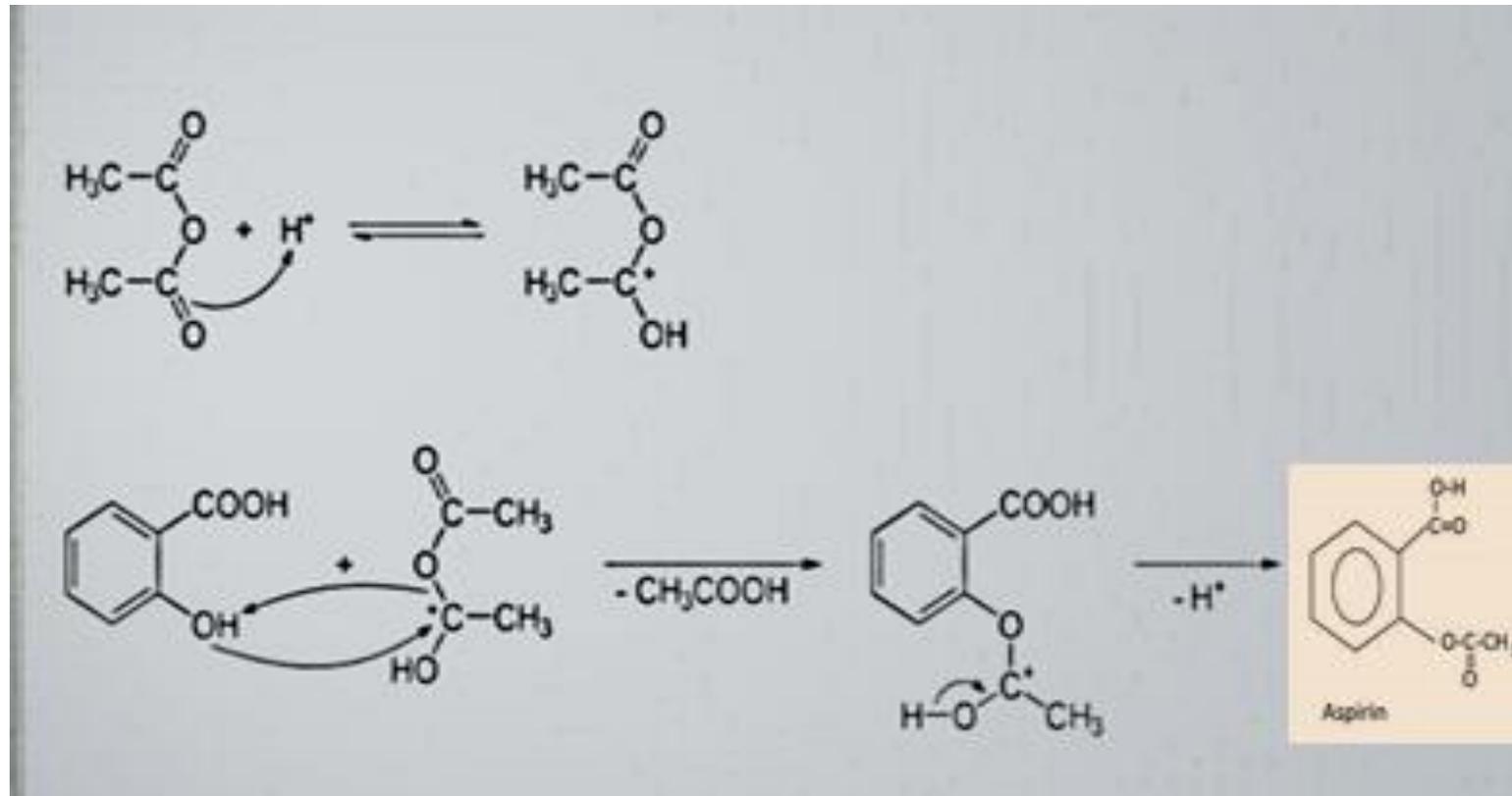
The acetylsalicylic acid will recrystallize, and the unreacted salicylic acid remains dissolved in the solution.

Equations:-



salicylic acid + ethanoic anhydride → aspirin + ethanoic acid

Reaction Mechanism



Materials And Chemicals

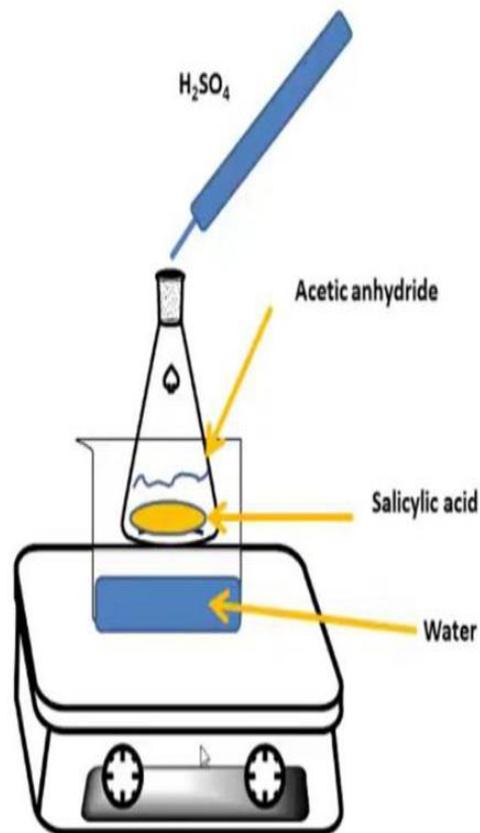
- 1- 1g of Salicylic Acid
- 2- 5ml Acetic Anhydride
- 3- Sulfuric Acid
- 4- Distill Water
- 5- Beaker
- 6- Conical Flask
- 7- Vacuum Flask
- 8- Hot Plate
- 9- Buchner Funnel
- 10- Ethanol

procedure

1- dissolve 1 g of salicylic acid with 5 ml of acetic anhydride in a conical flask .

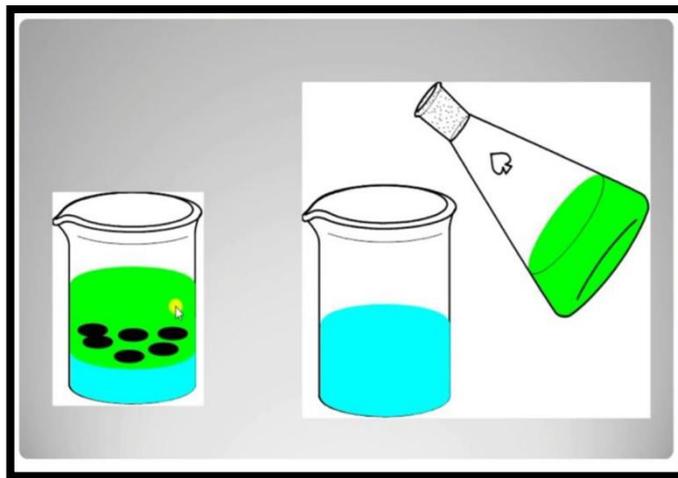
2-add 3 drops of concentrated sulfuric acid (H_2SO_4) and stir the conical flask to mix well .

3- Heat this mixture on a boiling water in water bath between 50°C - 60°C , stirring for 10 minutes.

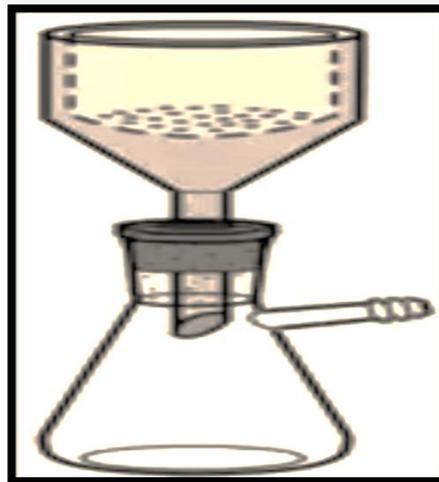


procedure

4-the prouduct cooled to from crystals which are then suction filtered and washed with cold water and ethanol .



5- filter the solid product watch with water and recrystallize to get pure aspirin.



Thank you