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Diploma in Pharmacy 1st Year

Pharmaceutical Chemistry

Experiment

To prepare and submit benzoic acid from benzamide.

Aim:

To prepare and submit benzoic acid from benzamide.

Reference :

‘ Dr. Gupta G.D. , Dr. Sharma Shailish , Kaur Baljeet ’ “Practical Manual of Pharmaceutical Chemistry” Published by Nirali Prakashan, Page no 60 - 63

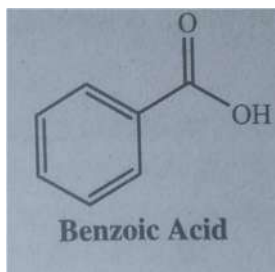
Requirements:

Apparatus Required: Conical flasks, beaker, filter paper, sample tube, dropper,

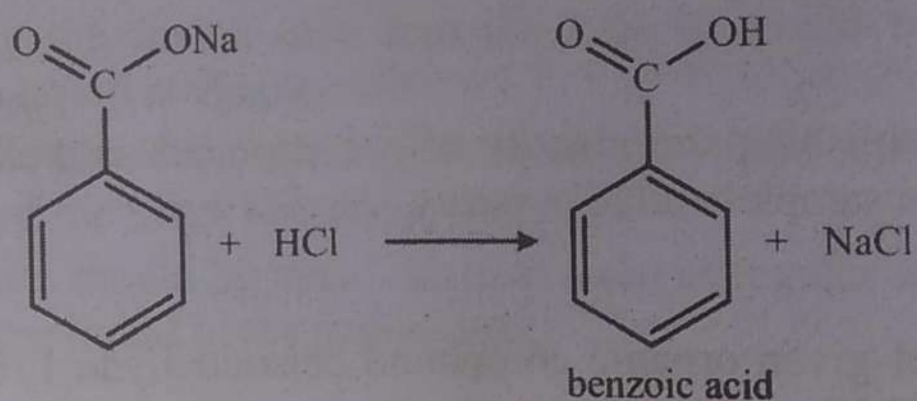
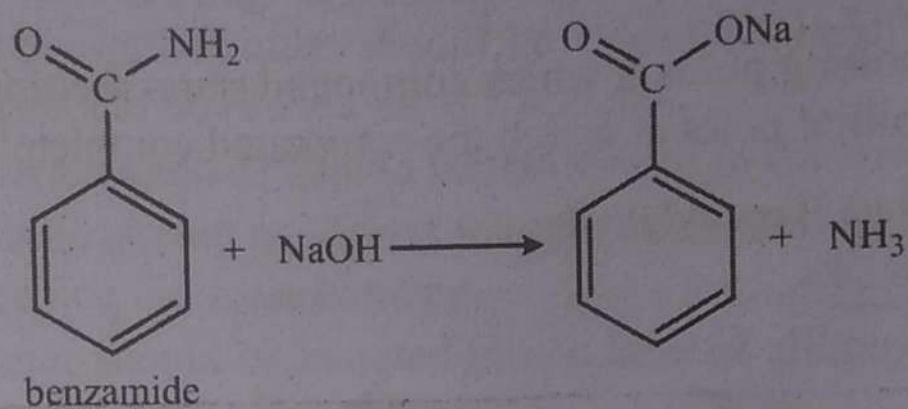
Chemicals Required: Benzamide, 10% NaOH, conc. HCl, and ice.

Theory:

- The molecular formula of benzoic acid is $C_6H_5CO_2H$ and is a white (or colourless) solid. It is the most basic aromatic carboxylic acid. The name is derived from gum benzoin, which was once the only source of the substance.
- Benzoic acid is found naturally in many plants and used as an intermediary in the production of many secondary metabolites. Preservatives made from benzoic acid salts are used in food. Benzoic acid is a key ingredient in the industrial production of a variety of organic compounds. The benzoates are the salts and esters of benzoic acid.
- Benzoic acid is an aromatic acid. It can be prepared by reacting benzamide with sodium hydroxide, which produces sodium benzoate and ammonia when hydrolysed. After that, it is acidified with concentrated HCl to produce benzoic acid.



Chemical Reactions



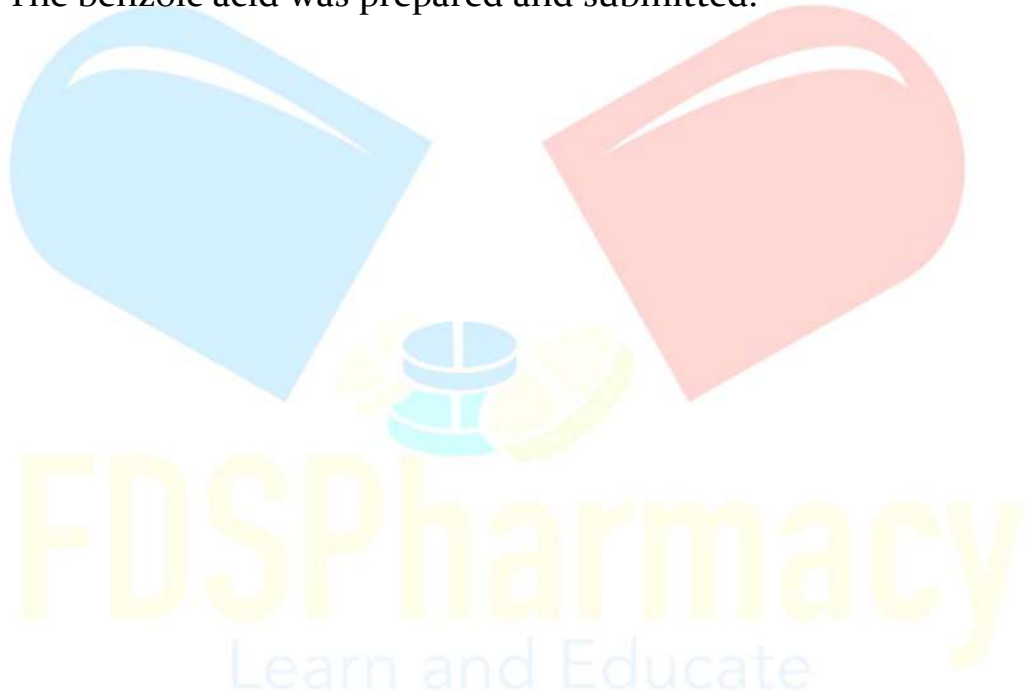
Procedure:

- 1.5g of benzamide and 10% NaOH 10ml should be taken in round bottom flask and are mixed well with constant stirring and heated in a water bath until ammonia gas finishes completely.
- The beaker should be kept for cooling and 20ml of distilled water should be added. Then after conc.HCl should be added gradually until the solution becomes acidic.
- The solution should be filtered and washed with water for removing all impurities. Then it should be dried and weighed.
- Recrystallisation should be done by using hot water.

Uses :

- ✓ It is used as antimicrobial preservative, antifungal and lubricant for tablets and capsules.
- ✓ Benzoic acid has been used in Whitfield's ointment in combination with salicylic acid for use as an antifungal for athlete's foot and ringworm.

Result: The benzoic acid was prepared and submitted.



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