EXPERIMENT: 10

AIM:

TO PERFORM ASSAY OF EPHEDRINE HYDROCHLORIDE (NON-AQUEOUS ACID BASE TITRATION) AND STANDARDIZATION OF TITRANT

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REQUIREMENTS

A. Glassware

1. Conical flask
2. Burette
3. Pipette

B. Chemicals & Reagents

1. Sodium benzoate
2. HCl
3. Acetic acid
4. Potassium acid phthalate

PRINCIPLE

The chloride anion in ephedrine hydrochloride is a weak acceptor of protons. When mercuric acetate is added, the chloride ion in this compound is exchanged for the acetate ion. When titrated against an acid like perchloric acid, acetate ions have a greater propensity to receive proton, which results in an accurate end point being obtained. In order to determine the concentration of ephedrine hydrochloride in glacial acetic acid, a predetermined amount of the hydrochloride is titrated with perchloric acid, and the end point is determined with the assistance of methyl orange solution as indicator.

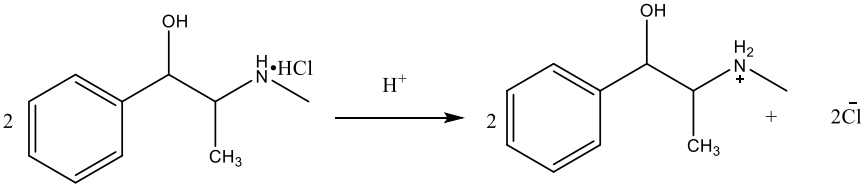
Ephedrine Hydrochloric acid is an agonist for both alpha- and beta-adrenergic receptors, and it also has the potential to stimulate the release of norepinephrine. Asthma, heart failure, rhinitis, and urine incontinence have all been treated with it. Additionally, narcolepsy and depression have been treated with it because to the stimulatory effects that it has on the central nervous

system. Because of the development of more selective agonists, its application has decreased to a lesser extent.

PROCEDURE

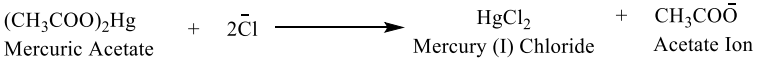
1. Weigh accurately about 0.17g of ephedrine hydrochloride and transfer it in a conical flask.
2. Dissolve in 10ml of mercuric acetate solution by warming gently and add 50ml of acetone, mix well.
3. Add 2 drops of methyl orange solution as indicator.
4. Then fill the burette with standardized solution of perchloric acid.
5. Start titration with the perchloric acid solution until the end point is reached. Record the reading of burette.

REACTION

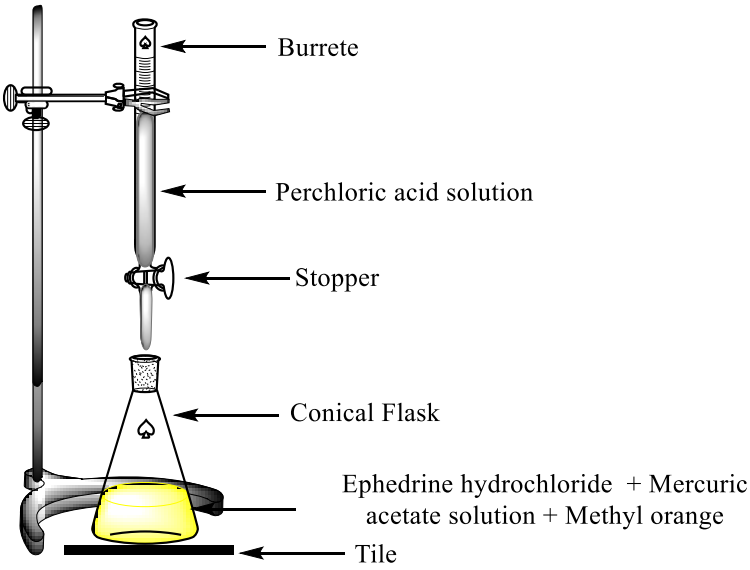


Ephedrine Hydrochloride

Protonated Ephedrine



DIAGRAM



APPLICATION

Ephedrine hydrochloride is a sympathomimetic and bronchodilator and is now used for mild bronchial asthma as well as for hypotension during spinal anesthesia.

RESULT

The percentage purity of the given sample of Ephedrine hydrochloride is ……..