

Qualitative Identification of Organic Compounds

Experiment 15 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To identify an assigned organic compound through a systematic, supervised qualitative examination.

Principle

A combined pattern of solubility, functional-group evidence and an appropriate derivative is more useful than a single colour reaction.

Requirements

- Coded instructor-issued compound, assigned test reagents, clean test tubes and authorised laboratory identification scheme.

Procedure

1. Preliminary record

Enter the code, physical state and visible appearance; do not taste or directly smell an unknown.

2. Solubility assessment

Use the prescribed small-scale solubility and acid/base classification scheme and record the actual result.

3. Choose functional-group tests

Select tests based on the solubility class and preliminary evidence. Use controls and avoid testing every reagent indiscriminately.

4. Confirm a candidate

Combine the assigned results with a suitable derivative or instrumental/physical identity comparison.

5. Report

List supporting and conflicting evidence and state the confidence and limitation of the identification.

Pharmaceutical Organic Chemistry

Observations and Record

Compound class	Evidence to record
Phenols / carboxylic acids	Acid-base behaviour and assigned selective test
Amines / amides / anilides	Basicity or assigned hydrolysis/derivative evidence
Aldehydes / ketones	Carbonyl test and distinguishing assigned evidence
Alcohols / esters	Assigned hydroxyl or hydrolysis evidence
Carbohydrates	Assigned carbohydrate reactions and solubility
Hydrocarbons / nitro compounds	Assigned classification and confirmation results

Result

Record the completed observations, calculations and conclusion with units. State any limitation of the observation.

Precautions

- Use only the coded compound and prescribed supervised identification scheme.
- A negative test is meaningful only if the method and control worked.
- Use an assigned safe derivative; never improvise a hazardous synthesis to identify a compound.

Viva Questions and Answers**1. Why are multiple tests used?**

Individual tests can lack specificity or be affected by interfering compounds.

2. Why use a derivative?

A suitable derivative provides additional identity evidence when compared under stated conditions.

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