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.

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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