

Organic Chemistry Practical

Qualitative analysis of
UNKNOWN organic compound

B.Sc. Hons (Chemistry)

Sem - III

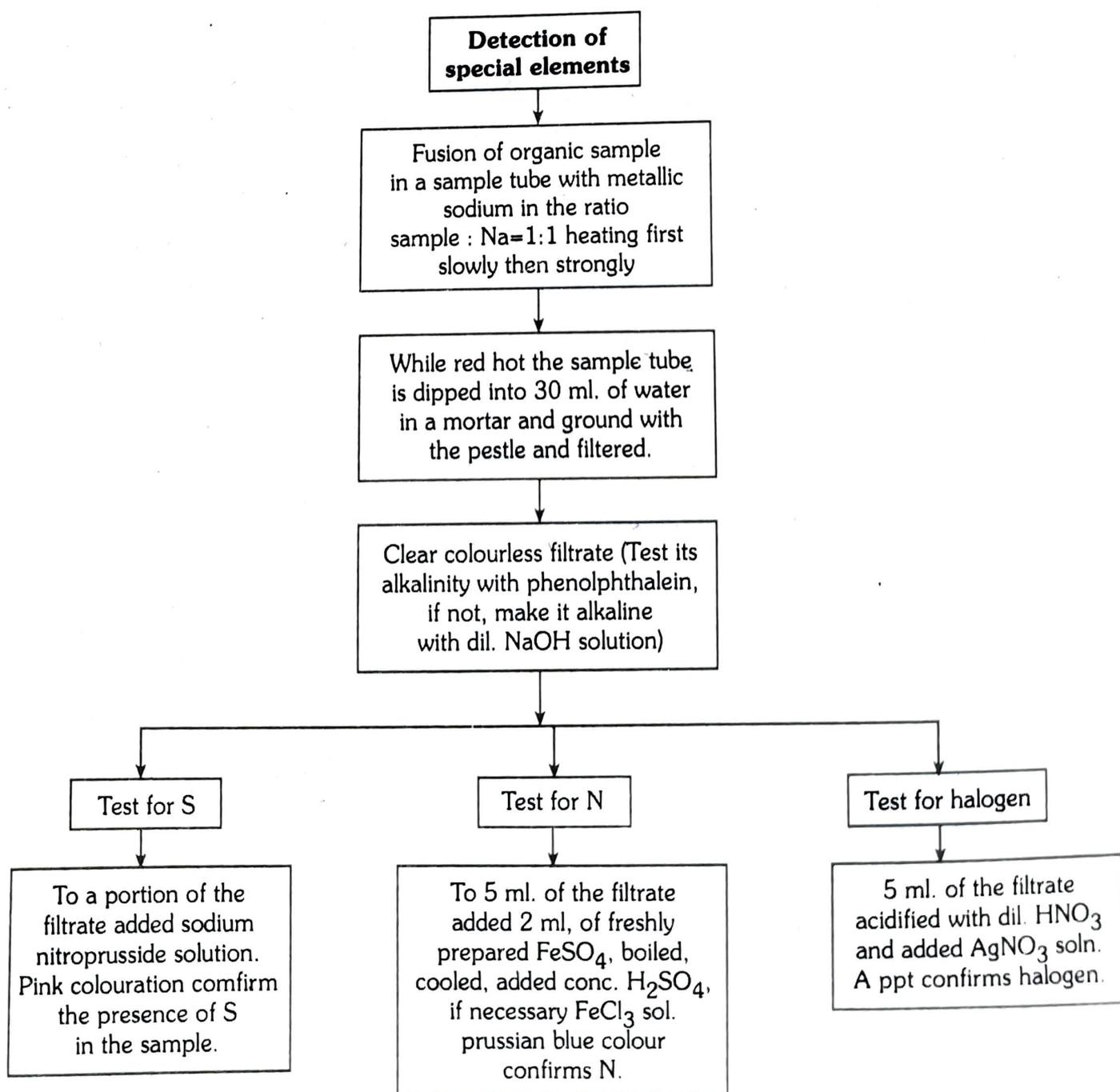
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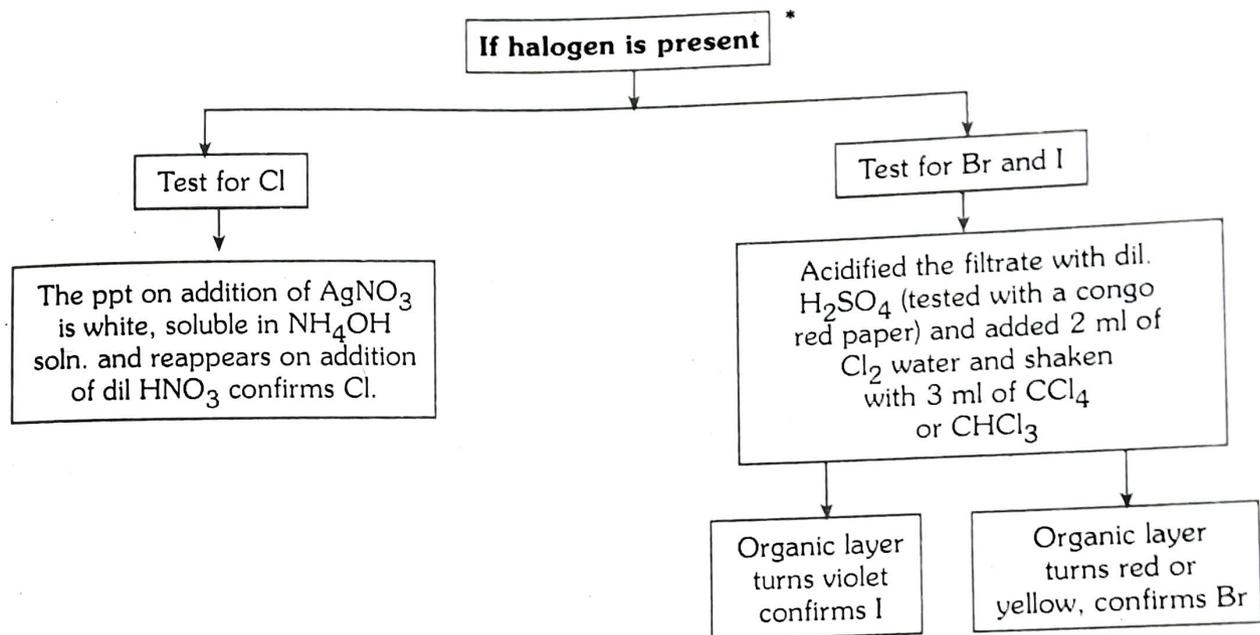
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Schematic representation of organic qualitative analysis

Organic qualitative analysis involves the following steps :

1. To note the appearance of the sample
2. To determine its melting point
3. To determine its solubility
4. To detect the *special elements* present in the sample.
5. To detect and confirm the *functional groups* present in the sample.
6. To prepare the derivative of the sample and determine its m.p. *after recrystallisation*.
7. To conclude the result of analysis.

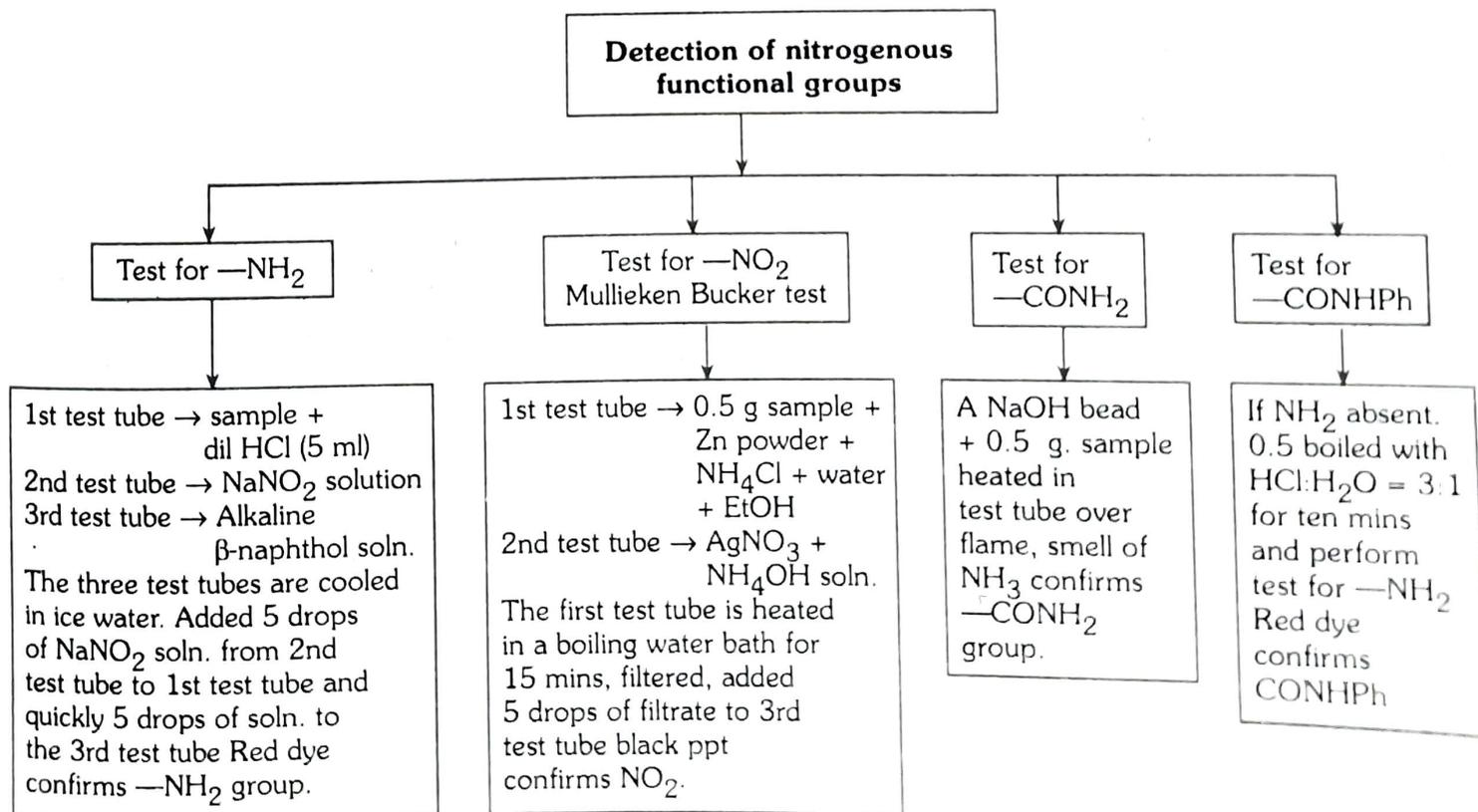




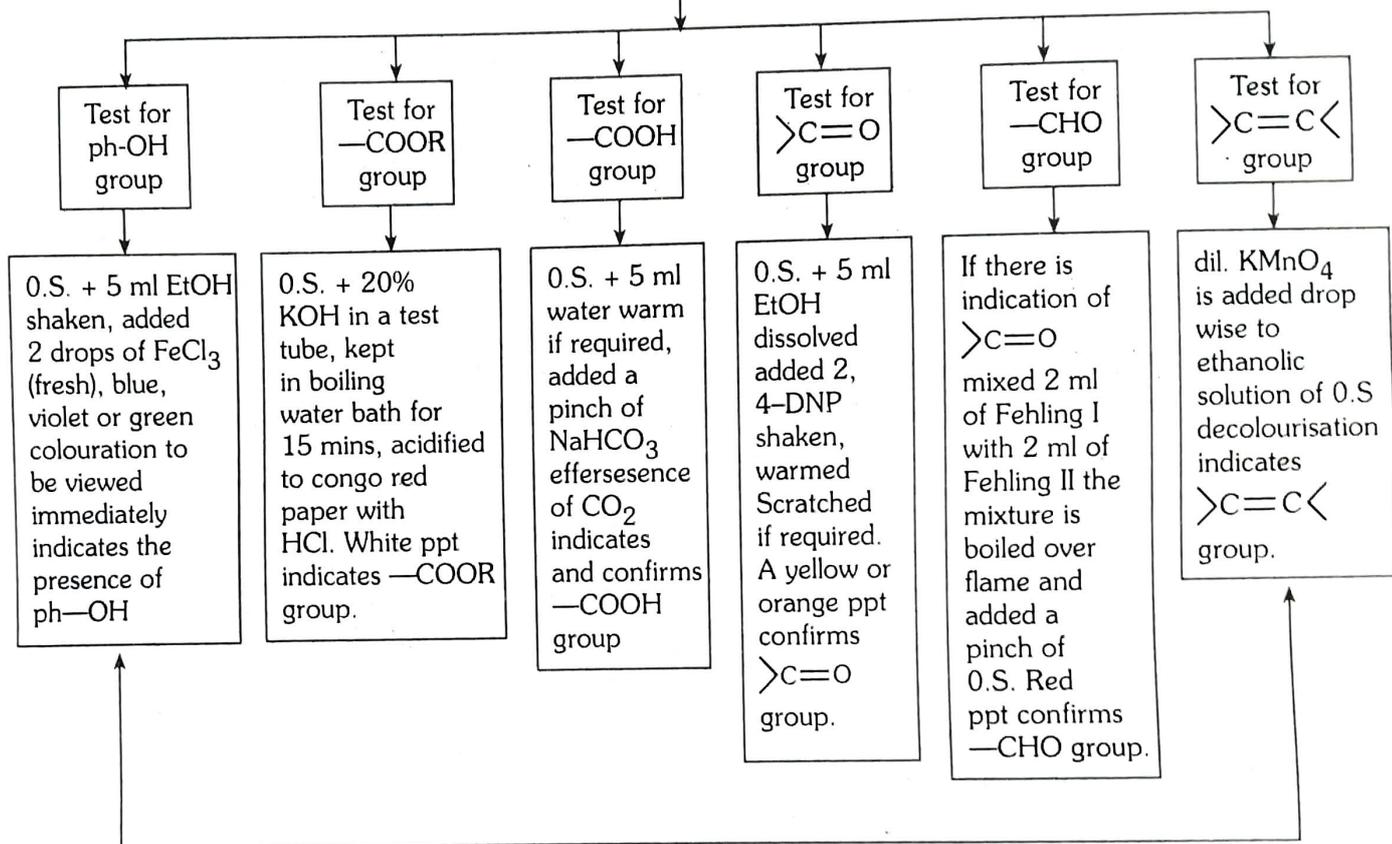
* If halogen is absent there is no need of the detection for Cl, Br and I.

Detection of functional groups

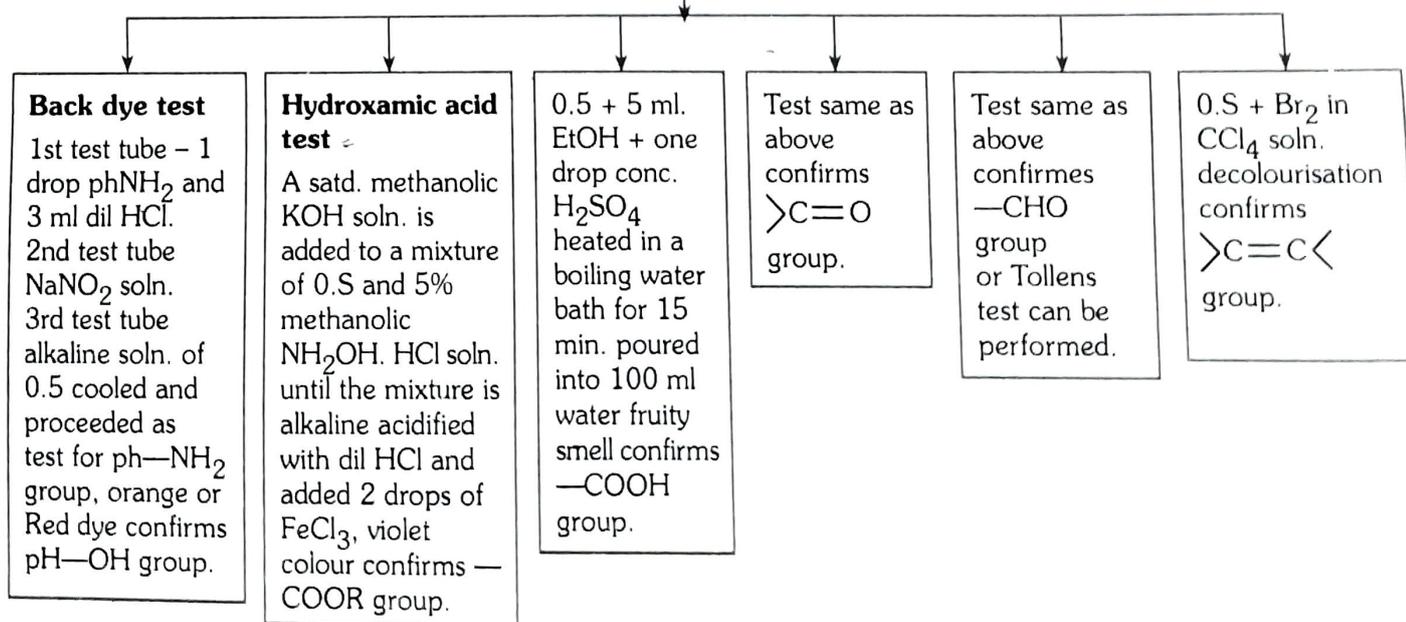
If *N* is present as special element, all the tests for functional groups (nitrogenous and non-nitrogenous) are to be performed but if *N* is absent, tests for nitrogenous functional groups may be omitted.



Detection of non-nitrogenous functional groups



Confirmatory tests



After detection and confirmation of functional groups, the derivative of O.S is to be prepared, derivative should be recrystallised and m.p. of the recrystallised derivative should be reported and final conclusion of the analysis is to be written. **O.S. ⇒ Organic Sample.**

Preparation of Derivatives

The preparation of crystalline derivatives in the pure states and the determination of their melting points constitutes an important means for the identification of the organic compounds. The derivatives are to be prepared usually starting from small quantities of organic samples and are to be crystallised to obtain them in pure states. The preparation of derivatives is nothing but organic preparations in a small scale. So the knowledge of organic preparation, isolation and recrystallisation in small amounts is very much essential for the purpose.

To prepare the derivative several reagents are generally used for a particular class of compound, but the choice of the reagent is not always easy. The suitability of the reagents depend on the following considerations.

- (a) It should be easily available.
- (b) It should be stable under ordinary condition.
- (c) It should react rapidly with the compound to be identified to give rise to derivative.
- (d) It should be easily isolated and purified.
- (e) The melting point of the derivatives should be between 80° - 250° and should be sharp.