

# Exercise 22

**Aim:** To detect the presence of fats (lipid) in different plants and animal materials.

**Principle:** Lipids (fats) are usually insoluble in water but soluble in organic solvent. Sudan III reagent gives a specific red colour with fats.

**Requirement:** Glassware; test tubes; Chemicals: Sudan III, ethyl alcohol, chloroform, ether, benzene; Miscellaneous: test tube holder, test tube stand, oil/ghee/butter.

## Procedure

### (a) Solubility test

- Arrange five dry test tubes in a test tube stand.
- Add 2 mL of water, ether, chloroform, benzene and ethyl alcohol to each test tube followed by one drop of mustard oil, ghee or butter.
- Shake thoroughly.
- Oil, ghee or butter is broken into small droplets in water which float at the surface indicating that fat is insoluble in water. But in acetone, benzene and ethyl alcohol no such droplets are formed as the oil, ghee or butter dissolves in these organic solvents.

### (b) Sudan III test

- Take 2mL of mustard oil in a test tube.
- Add equal volume of water to it and shake.
- Add a pinch of sudan III and shake again.
- As the layers separate out, the lipid layer is seen to be stained red, whereas water layer remains uncoloured. This indicates the presence of lipids.

## Questions

1. What is the simplest form of fat?
2. Will fat dissolved in organic solvent give a positive result with sudan III?