

### **Aim - Determination of Total Lipid in Fish Tissue (Soxhlet Method)**

**Principle:** Lipid in food present in various forms like monoglycerides, diglycerides, triglycerides and sterol and free fatty acid and phospholipid and carotenoids and fat-soluble vitamins. Lipid is soluble in organic solvent and insoluble in water, organic solvents like ether having very low boiling point (35-40°C) have the ability to solubilise fat and fat is extracted from food in combination with the solvent.

The soxhlet apparatus facilitates minimum expense of ether through repeatedly condensing it in the condenser with a cold water flow and then receiving it by the aid of siphoning actively in the receiving flask. Later the fat is collected by evaporating the solvent. Almost all the solvent is distilled off and can be reused.

### **Materials:**

- Soxhlet extractor
- Soxhlet condenser
- Round bottom flask (receiving flask)
- Extraction thimble
- Petroleum ether (B.P. 40-60°C)

### **Method:**

- First of all, rinse all the glass apparatus and dry it in the oven at 102°C and after removing it keep in the desiccator.
- Weigh moisture free sample and transfer to a thimble plugged with cotton.
- Take weight of the clean and dry 150 ml round bottom flask.
- Fill the flask with 90 ml ether.
- Place the extraction thimble into the extractor in a straight direction so that the condensed ether may drop on it.
- Attach the extractor with a receiving flask
- Connect the extractor and the receiving flasks to the soxhlet condenser.
- Adjust the electrical heating unit in such a way that the solvent siphons over 5 to 6 times per hour.

- Continue the extraction for 16 to 20 hours.
- After the extraction is complete, remove the thimble.
- Collect almost all the solvent after distillation
- Restore maximum amount of solvent.
- Remove the excess solvent from the flask by overnight drying it in oven at 100°C.
- Record the weight of the flask after cooling it in the desiccator.

**Calculation:**

The Crude fat was calculated and expressed as percentage.

Total lipid (%) =