

Experiment-3

Determination of Crude Fat

Principle:

Ether is continuously volatilized, condensed and allowed to pass through the sample resulting in extraction of ether soluble fractions. The extract is collected in an aluminium extraction cup. When the process is completed the ether is distilled and collected in other container and the remaining crude fat is dried and weighed.

Reagents and equipment:

1. Petroleum ether (B.P. 40-60°C)
2. Thimbles and extraction cups
3. Soxhlet extraction apparatus
4. Desiccator

Method:

- Weigh 2-3 g of the dried sample (residue from dry matter determination can be used) into an extraction thimble
- Place the thimble inside the soxhlet apparatus
- Connect a dry pre-weighed solvent flask beneath the apparatus and add the required quantity of solvent and connect to condenser
- Adjust the heating rate to give a condensation rate of 2 to 3 drops/second and extract for 16 hr. (the extraction time may be reduced to a minimum of six hour by increasing the condensation rate)
- On completion, remove the thimble and reclaim the ether using the apparatus
- Complete the removal of ether on a boiling bath and dry the flask at 105°C for 30 min
- Cool in a desiccator and weigh.

Calculation:

$$\text{Total fat (\%)} = \frac{W1 - W2}{W} \times 100$$

Where, W1 = weight of flask with fat

W2 = weight of empty flask

W = weight of the dry sample