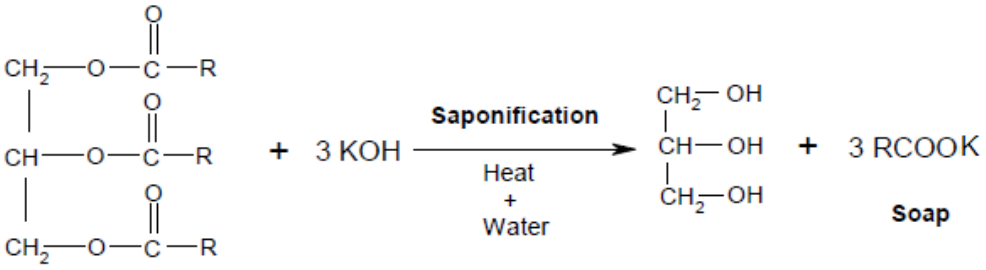
## Experiment No.(5) Saponification number of lipids:

- ***Saponification*** is a process that produces soap, usually from fats.
- ***Saponification number*** is expressed by potassium hydroxide in mg required to saponify one (1) gram of fat.




## Materials:

1. Oil.
2. Oil solvent (mixture of equal volumes of 95% ethanol and ether).
3. Potassium hydroxide (0.5N).
4. Hydrochloric acid (0.5N).
5. Phenolphthalein indicator.
6. Reflux condenser.
7. Burette.
8. Water bath.

## Procedure:

1. Weigh 1g of oil in beaker and dissolve in about 3ml of the oil solvent (ethanol /ether mixture).
2. Transfer the contents of the beaker into 250 mL conical flask.
3. Wash the beaker several times with oil solvent and transfer the content into the conical flask.
4. Add 5mL of KOH solution into the conical flask.
5. Prepare another conical flask containing the same contents of the first conical except the oil (3mL oil solvent + 5 mL KOH). This conical flask is called ***Blank*.**

6. Set up reflux condenser for both flasks.
7. Place both the flasks in a boiling water bath for 30 minutes.
8. Cool the flasks to room temperature.
9. Now add phenolphthalein indicator to both the flasks and titrate with 0.5N HCl.
10. The difference between the blank and test reading gives the number of milliliters of 0.5N KOH required to saponify 1g of fat.
11. Calculate the saponification value using the formula :

$$\textbf{Saponification number} = \frac{\textbf{Blank reading} - \textbf{Test reading}}{\textbf{Weight of oil}} * \mathbf{28}$$

Note: Equivalent weight of KOH = 56 g/eq.

1 liter of 0.5 N KOH solution contains 28 g of KOH

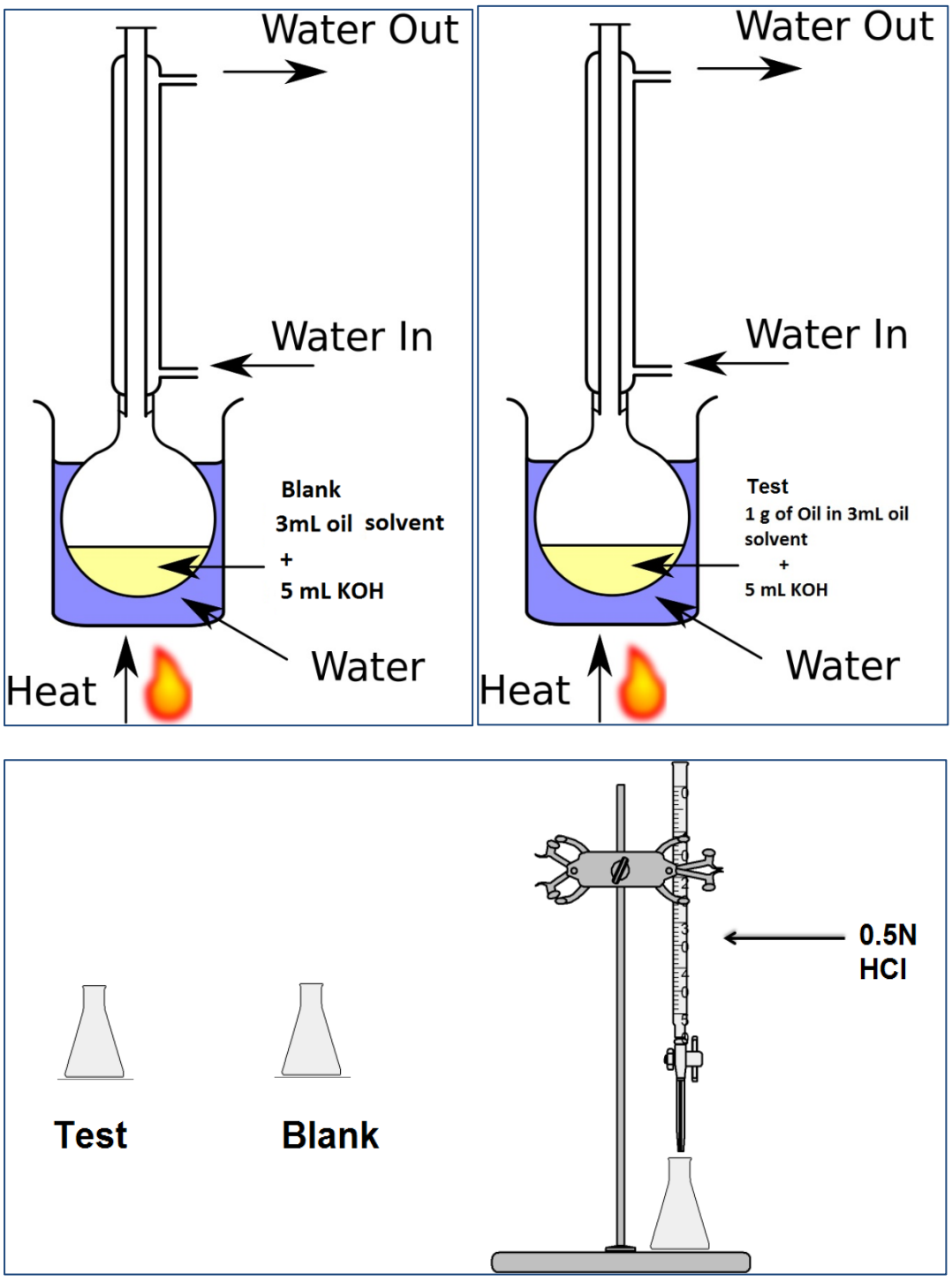



**Figure 5. Saponification number of lipids.**