Solubilization by complexation

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Second stage

Lap-2

The objective of the experiment

1- To determine how many method used to increase the solubility of drug

Solubilization

- It defined as particular mode (method) of bringing into solution substances that are otherwise insoluble in a given medium

Solubilization method

1- complexation method

By complexation method , we can dissolve the slightly soluble compounds like iodine (I**2**), which can be dissolved only by forming a complex when it reacts with potassium iodide (kI) .

- Formation of complex increase the solubility of the compound .
- Iodine can not be dissolved unless its converted to a complex .

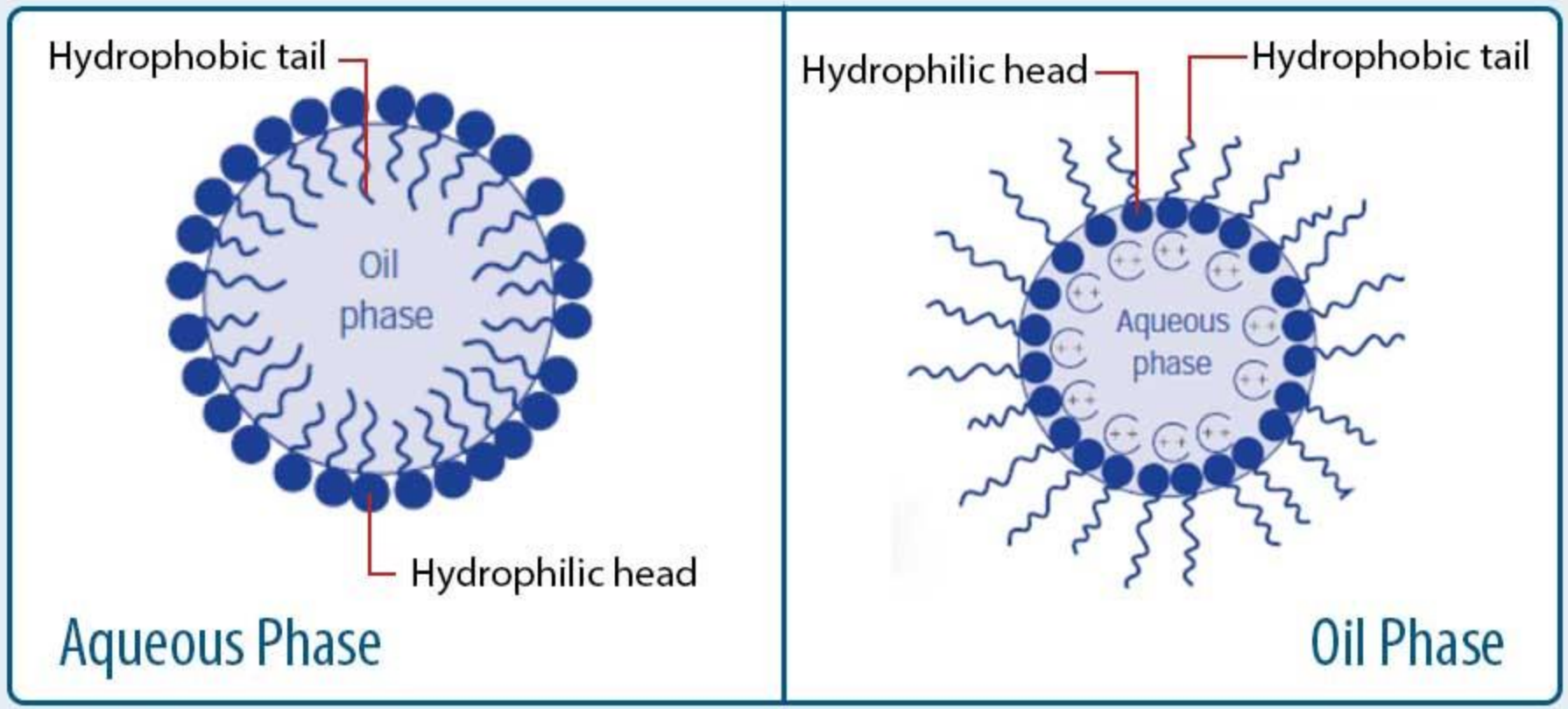
2- surface active agent (S.S.A)

- The are ions or molecules that **have the ability to be adsorbed on interface because of possession of polar(hydrophilic part) and non-polar (hydrophobic part) groups** in these ions or molecules .

1 - these ions or molecules are called (**Monomer**) and aggregation of these monomers called (**micelle**) (each micelle = 50 monomer)

2- **Critical micelle concentration** (CMC): the concentration at which the micelle form

Surface Active Agents



3- Salt formation

- In this method we add Na2Co3 to salicylic acid . It will convert salicylic acid from weak acid to salt .

III. Experimental Work

- Part I:
- MATERIALS :Acetyl salicylic acid , tri-sodium citrate, distilled water, phenol red , sodium hydroxide and filter paper
- GLASS WARE and EQUIPMENTS : conical flasks, graduated pipettes, funnel, burette. In addition to electrical balance.

Part II: Experimental method

- 1. Add 1 g of Aspirin to the following flasks then :

Conical flask	Weight of tri-sodium citrate
1	0 g
2	1 g
3	2 g
4	3 g
5	4 g

Asp.	1 g	1 g	1 g	1 g	1 g
Tri Sodium citrate	0 g	1 g	2 g	3 g	4 g

50 ml D.W

↓ Shake for 10 min.

↓ Filter (Filtrate).

↓ Take 10 ml of filtrate from each flask.

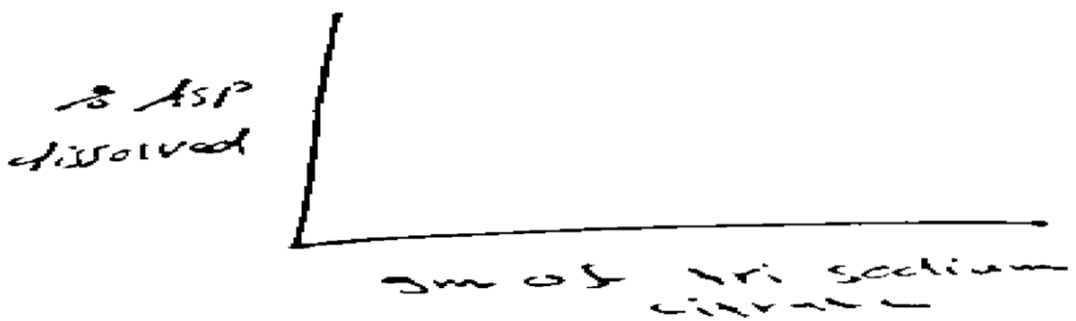
↓ Titration with 0.1N NaOH

Using Phenol red indicator

↓ end point (E.P)

↓ Color changes to (Pink).

↓ (Plot) of aspirin dissolved versus grams Sodium citrate.



$$\overbrace{N \cdot V}^{\text{Asp.}} = \overbrace{N \cdot V}^{\text{NaOH}}$$

$$\frac{wt}{eq.wt} \times \frac{1000}{V} \cdot V = 0.1N \times E.P$$

$$\frac{wt}{180} \times 1000 = 0.1 \; E.P$$

$$wt = \frac{180 \times 0.1 \times E.P}{1000}$$

$$\% \text{ wt of Aspirin dissolved} = 0.018 \; EP \times 100$$