COLLEGE OF PHARMACY
UNIVERSITY OF BASRAH

Solubility & Distribution Phenomena

2018 / 2019

Outlines

- Objectives
- Solubility & Dissolution
- Solubility Expression
- Solvent-Solute Interaction

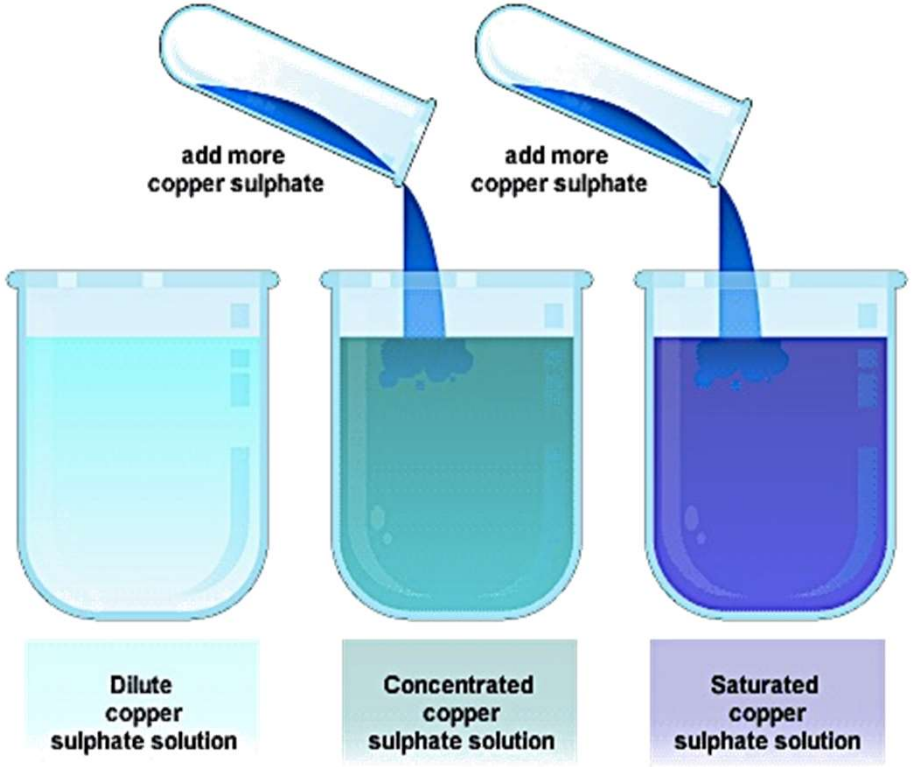
Objectives

1. Define saturated solution, solubility, and unsaturated solution.
2. Describe and give examples of polar, nonpolar, and semipolar solvents.
3. Define complete and partial miscibility.
4. Understand the factors controlling the solubility of weak electrolytes.
5. Describe the influence of solvents and surfactants on solubility.
6. Define thermodynamic, kinetic, and intrinsic solubility.
7. Measure thermodynamic solubility.
8. Describe what a distribution coefficient and partition coefficient are and their importance in pharmaceutical systems.

Solubility

1-Quantitative: ?

2-Qualitatives: ?



- Unsaturated or subsaturated solution.
- Supersaturated solution
- Thermodynamic solubility: most stable crystalline form

Case study

- Example: **Ritonavir**: HIV protease inhibitor 17
- 1992 –discovered
- 1996 – launch of capsule/polymorph I
- 1998 – polymorph II appears ↓ solubility →PRODUCT WITHDRAWN FROM THE MARKET
- 1998-1999 – Reformulation of the compound ↑costs
- New softgel capsule launched

RESULT :

NEW product

Increased costs

Time loss