

وزارة التعليم العالي والبحث العلمي

كلية المستقبل الجامعة

قسم الصيدلة

مختبر الصيدلة الفيزيائية / المرحلة الثانية

EXP 3

Solubilization

The purpose of the experiment:

To determine how many methods used to increase the solubility of drugs.

Principle:

Solubilization methods:

1- Complexation

Complexation may enhance the solubility of some insoluble compounds through the formation of more soluble complex.

A- Example of drugs its solubility may be enhanced through complex formation:

Benzoic acid + caffeine

Aspirin + sodium citrate

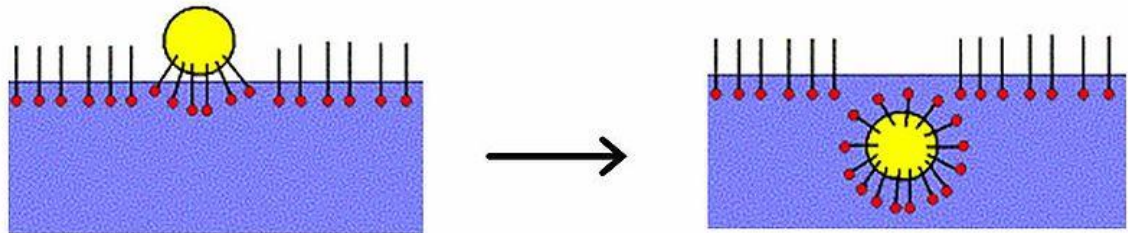
B- Examples of drugs whose solubility and the absorption may be decreased :

Tetracycline with iron, magnesium, calcium and aluminum.

2- Micellar Solubilization:

Surfactants and micelles surfactants are amphiphilic molecules compound of a hydrophilic or polar moiety known as head and a hydrophilic or non-polar moiety known as tail.

Example of drugs solubilized by this method, Essential oil, steroids, hormones, and oil soluble vitamins.



3- Co- solvency:

Solubility of some compounds may be enhanced through the use of a mixture of solvents rather than use of a single solvent.

Example: glycerol and propylene glycol.

4- Salt formation:

Solubility of an acidic or basic drug may be enhanced through the addition of a basic or acidic substance respectively due to formation of salt.

Example: salicylic acid is slightly soluble in water while the sodium salt of the drug is highly soluble in water.

5- Heating:

In endothermic dissolution type the solute's solubility is enhanced through heating of the solution.

This application is limited to small number of compounds in pharmaceutical formulations.

Example: parabens can't be dissolved without heating until they melt and finally go into solution.

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