

MEDICINAL CHEMISTRY-I – BP402T

UNIT: 1

CLASS: 3

TOPIC: CHELATION**CHELATION:**

Complexes or coordination compounds result from a donor acceptor mechanism or Lewis acid –base reaction (donating- accepting protons).

Any non metallic atom or ion whether free or contained in a neutral molecule or in an ionic compound, that can donate an electron pair, may serve as a donor.

The acceptor or constituent that accept a share in the pair of electrons can be a metallic ion or sometimes also a neutral molecule.

In addition to ‘co-ordinate covalence’, intramolecular forces can also be involved in formation of complexes.

Complexes may be divided into three classes basing on the acceptor compound—

1. Metal ion complexes Eg: Cytochromes
2. Organic molecule complexes Eg: benzene- 1,2,3 trinitro benzene
3. Inclusion complexes Eg: toluene in β -cyclo dextrins

The compounds that are obtained by donating electron to metal ion with the formation of a ring structure are called chellates.

The compounds capable of forming a ring structure with metal ion are termed as “Ligands”.

Applications of chelation:

- i.) Dimercaprol is a chelating agent. It is used as an effective antidote for arsenical poisoning. It is also used for antimony, gold and mercury poisoning.
- ii.) Penicillamine acts as an effective antidote for Copper poisoning by forming water soluble chelates with Copper and other ions.
- iii.) 8- hydroxyl quinidine and its analogues act as antifungal and antibacterial agents by forming complexes with Fe/Cu.

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