PHARMACEUTICAL ORGANIC CHEMISTRY-II- BP301T

UNIT: 5 Cycloalkanes

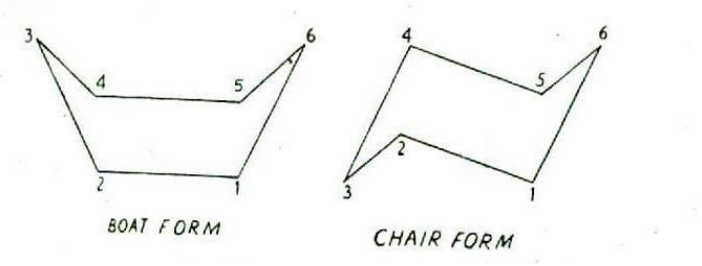
CLASS: 6

TOPIC: Cycloalkanes

SACHSE MOHR'S CONCEPT OF STRAINLESS RINGS

In order to account for the stability of cycloalkanes beyond cyclopentane, Sachse and *Mohr (1918) pointed out that such rings can become absolutely free of strain if all the ring carbons are not forced into one plane* as was supposed by Baeyer.

If the ring assumes a such 3D condition the normal tetrahedral angles of 109°28 are retained and as a result, the strain within the ring is relieved. Thus, cyclohexane can exist in two non-planar stainless forms, namely, the Boat form and the Chair form.
In the Boat form, carbons 1, 2, 4 and *5* lie in the same plane and carbons 3 and 6 above the plane. In the chair form, carbons I, 2, 4 and 5 lie in the same plane, but carbon 6 is above the plane and carbon 3 is below it.



Actually, only one form of cyclohexane is known and not two forms as shown above. The failure to isolate the two forms is due to rapid interconversions between them. Such non-planar strain less rings in which the ring carbon atoms can have normal tetrahedral angles are also possible for larger ring compounds.