PHARMACEUTICAL ORGANIC CHEMISTRY-II- BP301T

UNIT: 5 Cycloalkanes

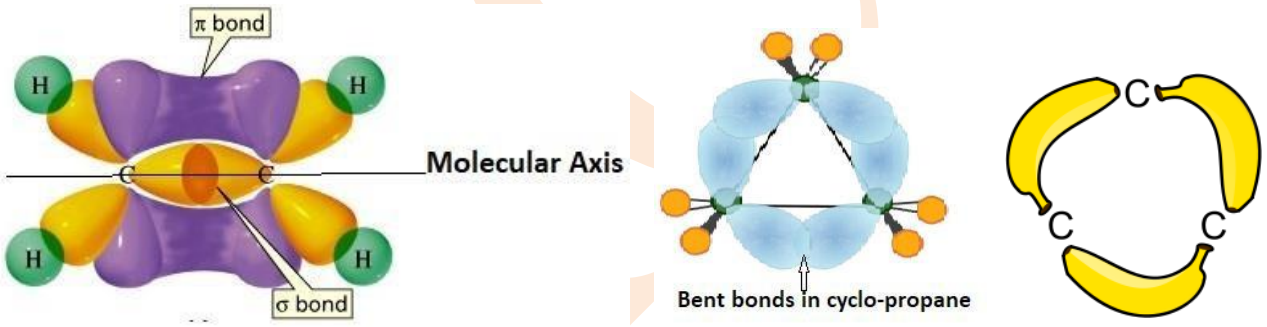
CLASS: 7

TOPIC: Cycloalkanes

Coulson and Moffitt's modification (Bent bond/Banana bond)

Coulson-Moffitt modify Baeyer strain theory to show the actual position of carbon-carbon bonds in cyclopropane, which somewhat relieves the strain on C-C bonds.

So, to satisfy regular tetrahedral geometry ($109^0 28'$) and equilateral triangle angle (60^0) they introduce a new type of bond called banana bond/bent bond which is intermediate between sigma bond and pi-bond in case of overlapping. **What is this Bent bond:-** Sigma bonds have head-on or end-to-end overlapping. The hybrid orbitals including the intersection bonding region are present equally on both side of the molecular axis. But in case of pi-bonds the lateral or sidewise overlapping of p-orbitals occur and here the bonding intersection area is totally out of the molecular axis.



In Bent-bond (usually they are sigma bonds) the hybrid orbitals and intersection bonding area are not present equally on the both side of molecular axis. The bonds are bent towards the direction of angle strain. So they are somewhat more unstable than sigma bonds and less unstable than pi bonds.