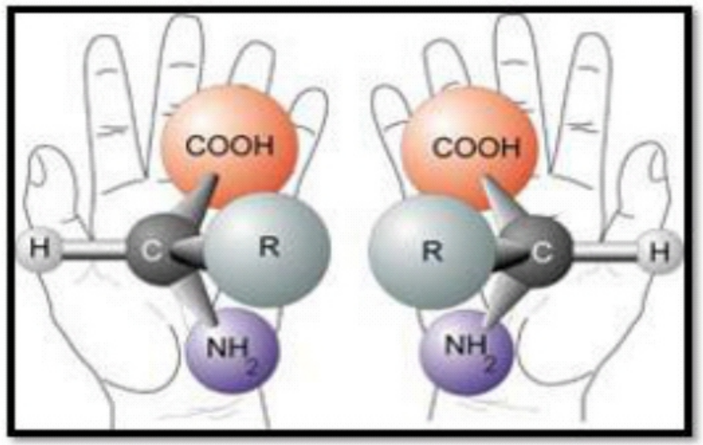
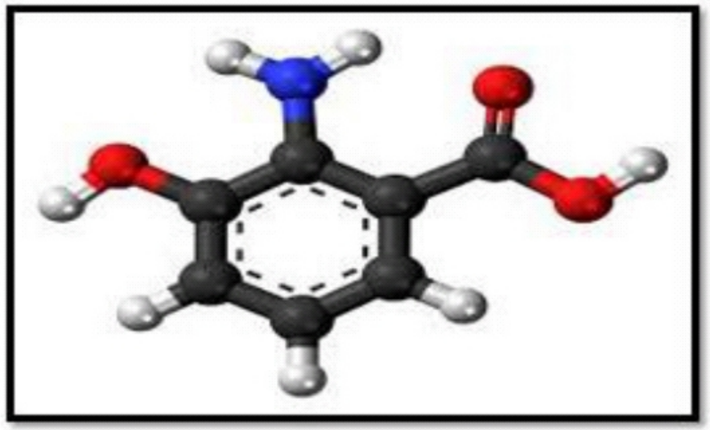
OPTICAL PROPERTIES OF AMINO ACIDS (PART-2)

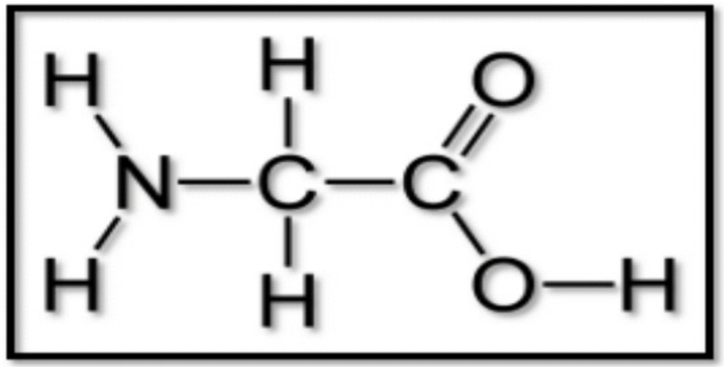




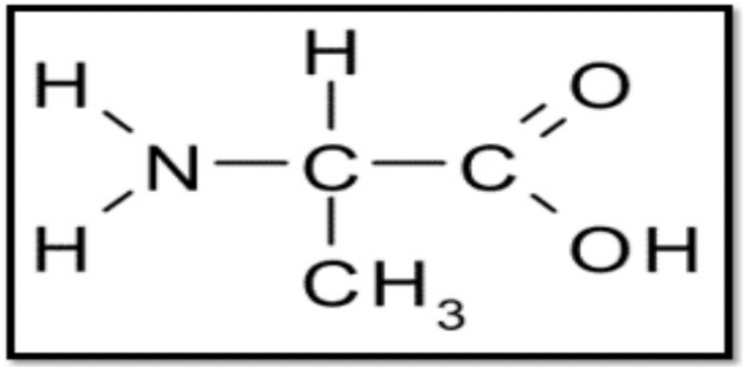
- All amino acids except **glycine** are optically active.

- **Optical active** molecules contains **chiral carbon**.

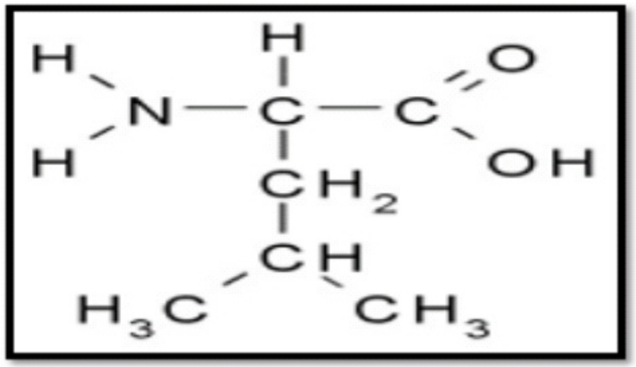
- All amino acids except glycine have chiral carbon & hence they are optically active but glycine is not.



glycine



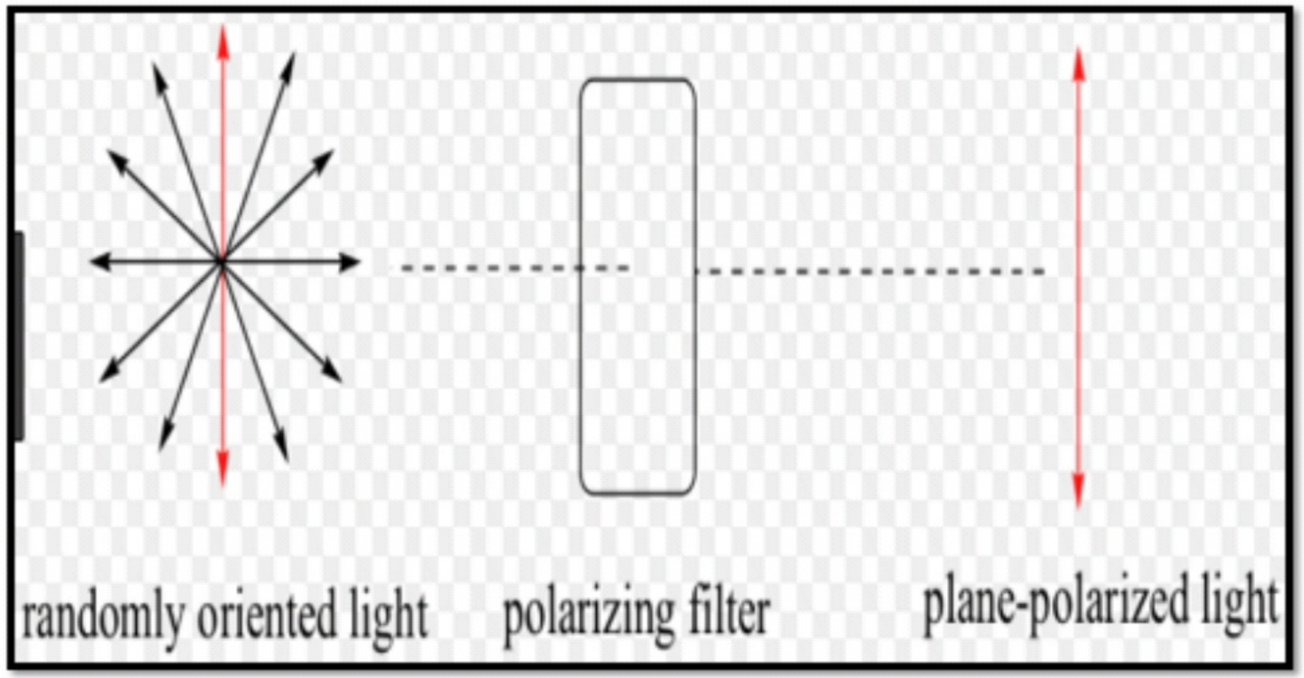
alanine

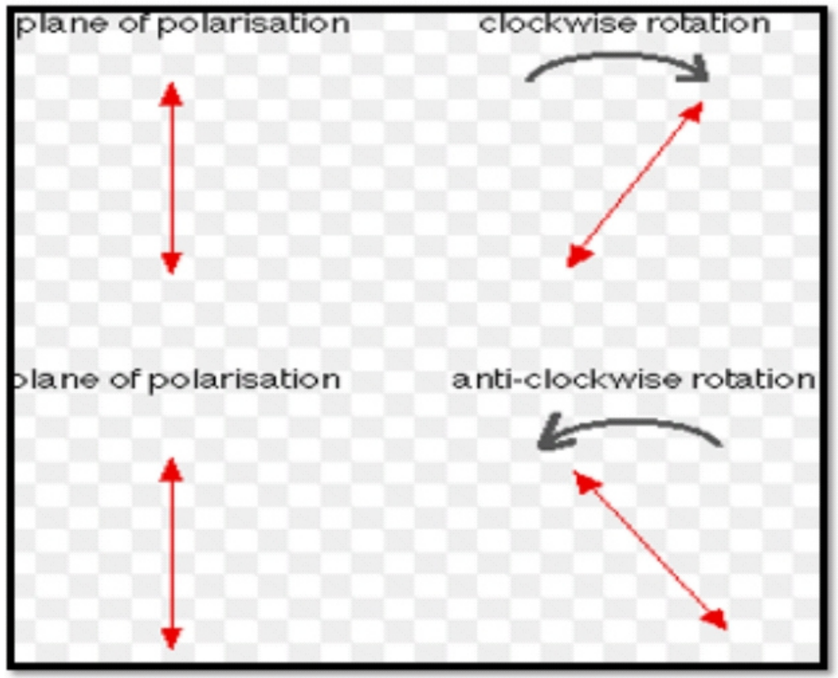


leucine

- An optically active compound can rotate the plane polarized light clockwise or anticlockwise.

- Remember what is **dextrorotatory** & **levorotatory**??





OPTICAL ROTATION

- It is the rotation of the plane of the polarization of plane-polarized light by an optically active substance.
- It is also known as optical activity.
- Optical activity is measured by polarimeter.
- But, how can we measure it??

$$[\alpha]_{\lambda}^{T} = \frac{\alpha \text{ degrees}}{l \text{ dm} \times C \text{ gmL}^{-1}}$$

α = optical rotation

T = temperature

λ = wavelength of polarized light

α degrees = observed rotation in degrees

l = light path length in decimeter

C = concentration of solution in gm/mL

➢ **A solution of L-Leucine (3.0g/50 ml of 6 N HCl) had an observed rotation of +1.81 degree in a 20cm polarimeter tube. Calculate the specific rotation of L-Leucine in 6N HCl.**

$$[\alpha]_D^T = \frac{A}{l \times C}$$

$$[\alpha]_D^T = \frac{+1.81}{2 \times 0.06} \quad \text{where, } l = 20\,\text{cm} = 2\,\text{dm} \text{ and } C = \frac{3\,\text{g}}{50\,\text{ml}} = 0.06\,\text{g/ml}$$

$$[\alpha] = +15.1°.$$

THANK YOU..STAY POSITIVE & ENERGETIC

HAPPY LEARNING!