

Specific rotation: Liquids containing an optically active substance e.g. sugar solution, camphor in alcohol etc. rotate the plane of the linearly polarised light. The angle through which the plane polarized light is rotated depends upon (1) the thickness of the medium (2) concentration of the solution or density of the active substance in the solvent (3) wavelength of light and (4) temperature

The specific rotation is defined as the rotation produced by a decimetre (10 cm) long ~~column~~ column of the liquid containing 1 gram of the active substance in one cc of the solution. Therefore

$$S'_\lambda = \frac{10\theta}{lc}$$

where S'_λ represents the specific rotation at temperature $t^\circ\text{C}$ for a wavelength λ , θ is the angle of rotation, l is the length of the solution in cm through which the plane polarized light passes and c is the concentration of the active substance in g/cc in the solution.

The angle through which the plane of polarization is rotated by the optically active substance is determined with the help of a polarimeter. When this instrument is used to determine the quantity of sugar in a solution, it is known as a saccharimeter.