



Summary

In this module basic concepts on properties of X-rays, geometry of crystals, X-ray diffraction, X-crystallography and their applications has been discussed. X-ray scattering from a single molecule would be unimaginably weak and could never be detected above the noise level, which would include scattering from air and water. A crystal arranges huge numbers of molecules in the same orientation, so that scattered waves can add up in phase and raise the signal to a measurable level. In a sense, a crystal acts as an amplifier. Of course, if the waves add up in phase in some directions, they have to cancel out in a lot of other directions. That is why the diffraction pattern from a crystal is an array of spots. These spots are later converted to electron density maps and finally the structure of crystal.

Under the Food biochemistry viewers will learn about the X-ray crystallography. The various aspect on this topic are divided as following subheadings.