Chapter-IV

Dyes, Drugs and Pesticides

A) DYES

Introduction:

In 1856 the first commercial synthetic dye, Mauve (mauveine) was prepared by Perkin and considered as father of organic dye industry.

"A coloure which is fast to light, water and detergent is known as dye". It can be also defined as "a coloured substance which when applied to the fabrics imparts a permanent colour and that colour is not removed by washing with water, soap or on exposure to light". All dyes are coloures but all coloures are not dyes.

Dyes are used to colour textile fibres (naturals or synthetic), leather, paper, hair, foodstuffs, plastics materials, etc. Generally all dyes were obtained from natural sources indigo, alizarin etc. are the classical examples of natural dyes. Now-a-days most of the commercial dyes are synthetic dyes. Even many of natural dyes are now preferably prepared by synthetic routes rather than natural sources. Dyes are used to colour foodstuffs (food colour) and medicines are also mostly synthetic dyes. However, the dyes used for these purposes have to be chosen very carefully because they must be safe from health point of view.

Conditions for a Substance to Act as Dye:

1) It must have suitable colour
2) It must be capable of fixing itself to the material to be dyed
3) When fixed, it must have fastness properties:
   (a) Fastness to light;
   (b) Resistance to the action of water, soap, detergents, dilute acids and alkalies, various organic solvents used in dry cleaning etc.
4) It must be fast to sunlight, heat and normal atmospheric conditions.

It should be noted that all dyes should be coloured, but all coloured compounds cannot necessarily be used as dyes.

Classification of dyes:

Dyes may be classified on the basis of structure and on the basis of mode of application.

Classification of dyes on the basis of structure:

Dyes with different chemical structures mainly differ in chromophores and auxochromes. Hence they can be classified on the basis of chromophoric system present in dye molecule. Some of main classes of dyes are as follows