

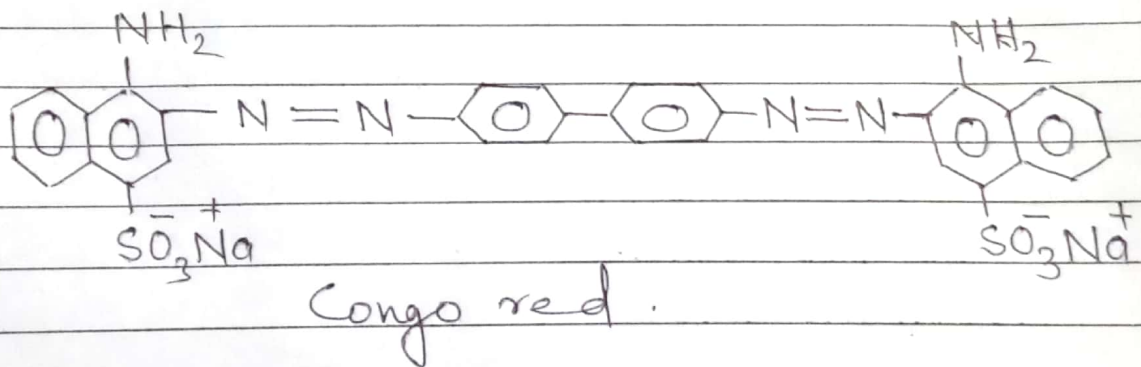
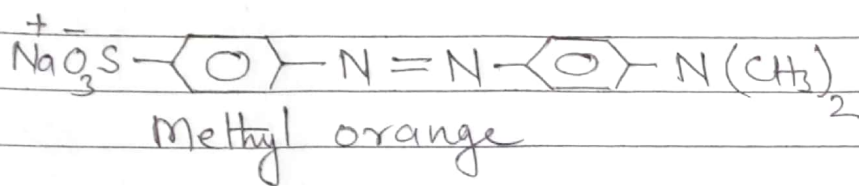
Classification of dyes

Dyes are classified on the basis of chemical constitution as well as its mode of applications.

(A) Classification of dyes on the basis of chemical constitution

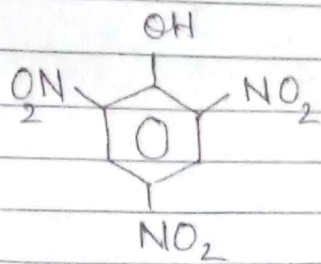
1) Azo dyes :- They contain an azo ($-N=N-$) group as chromophore in between two aromatic rings. The azo dye is the largest group among the synthetic dyes and give a variety of colours.

Examples: Methyl orange, Congo red

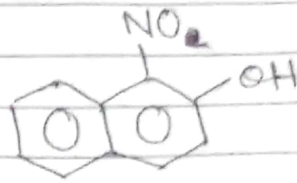


(2) Nitro and nitroso dyes - These dyes contain nitro ($-N^{\text{O}}_{\text{O}}$) and nitroso ($-N=O$) as ϵ groups as chromophore in the molecule.

Examples:



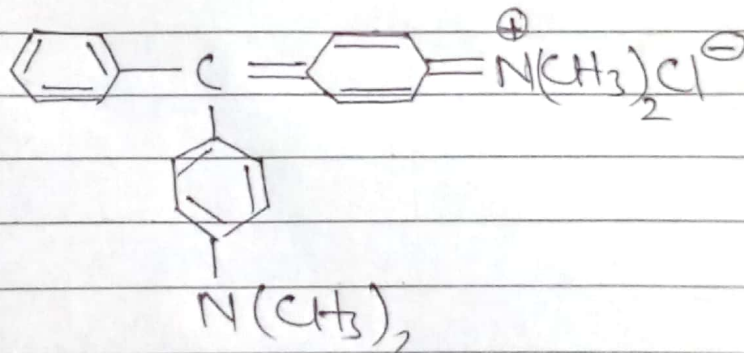
Picric acid



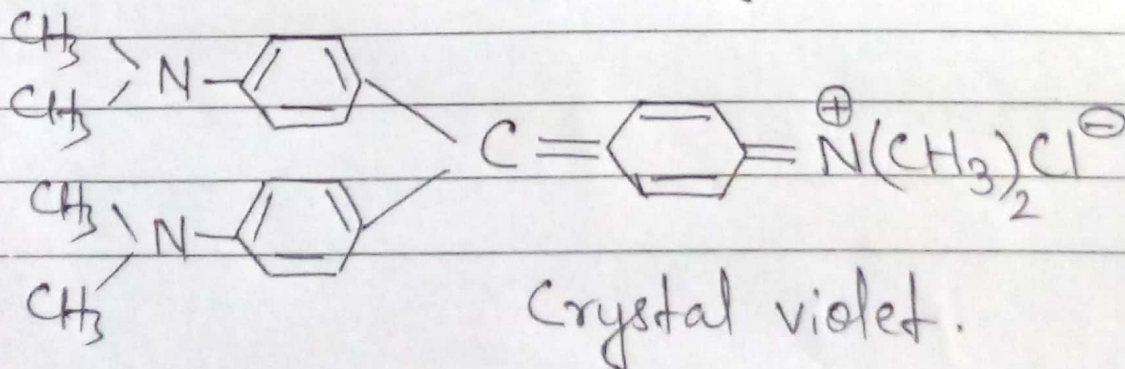
Naphthol green

(3) Triphenyl methane dyes - They are derivatives of triphenyl methane containing $-NH_2$, $-NR_2$ or $-OH$ groups at para positions as auxochromes. These are colourless compounds called leuco bases. These compounds on oxidation give coloured base, which on treatment with acid give the salt. These dyes contain quinonoid group as the chromophore.

Examples:



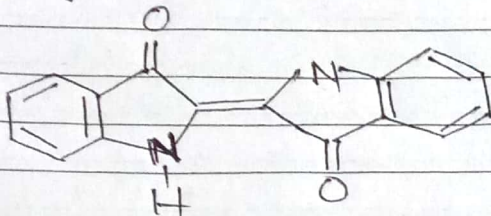
malachite green.



Crystal violet.

(4) Indigo dyes - They are derivatives of indole and containing enedione ($\text{—}\overset{\text{O}}{\underset{\text{||}}{\text{C}}}\text{—}\text{C}=\text{C}\text{—}\overset{\text{O}}{\underset{\text{||}}{\text{C}}}\text{—}$) group as chromophore

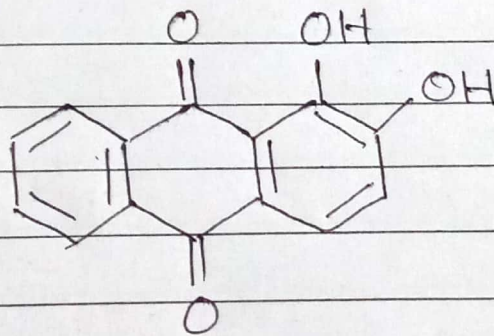
Example -



Indigo dye

(5) Anthraquinone dyes - They are derivatives of Anthraquinone, with para quinonoid chromophore. It contains —OH , —NH_2 , —NHR , —NH , —Ar , —NHCOR groups as auxochrome.

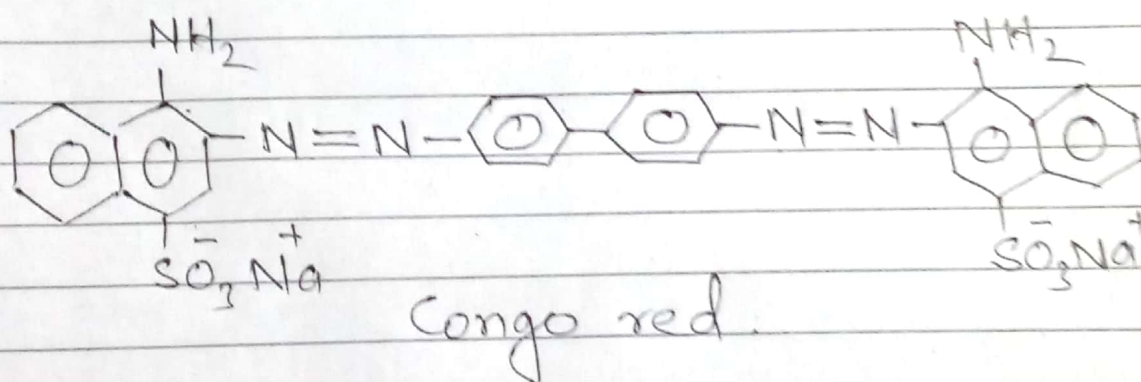
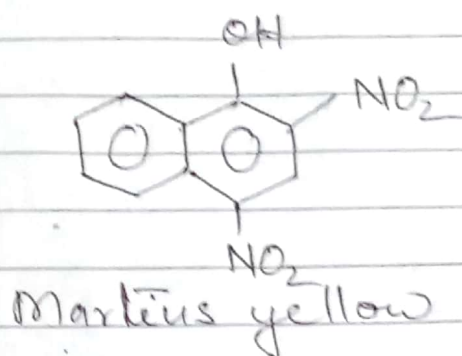
Example



Alizarin dye

(B) Classification of dyes on the basis of mode of applications.

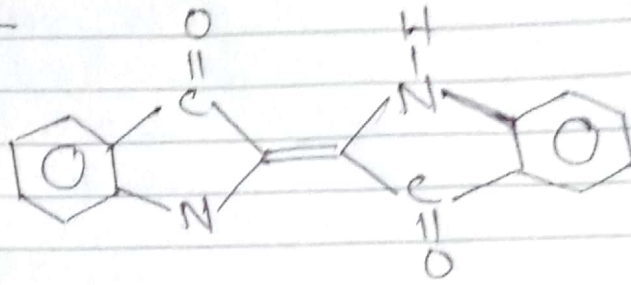
(1) Direct dyes - These are water soluble dyes and are applied to the fabric directly from aqueous solution. These are most suitable for the fabrics which can form hydrogen bonding with the dyes.
Example



(2) Vat dyes - These dyes are insoluble in water, hence can't be directly applied to the cellulose fabric (cotton). When such dyes are reduced in the alkaline medium, colourless leuco compounds are obtained. These compounds are soluble in alkali and has great affinity for cotton. The process of

reduction and solubilisation is known as vatting.

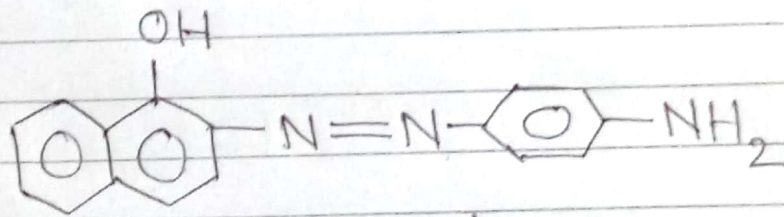
Example -



Indigo dye

(3) Ingrain dyes - These dyes are directly synthesised on the fabrics. The fabric is dipped in the alkaline solution of naphthol and then treated with a solution of the diazotised amine.

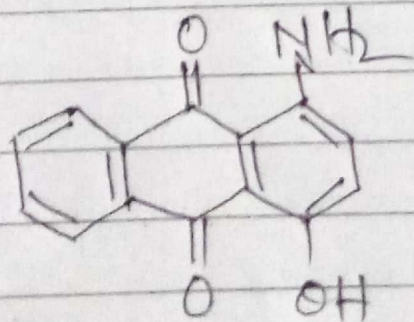
Example



Para Red

(4) Disperse dye - These dyes are dispersed in colloidal soap solution in presence of stabilizing agent and adsorbed on fabrics. These dyes belong to the class of anthraquinone dyes.

Example .

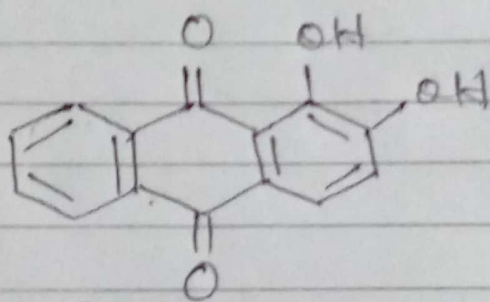


1-Amino-4-hydroxyanthraquinone .

(6)

(5) Mordant dyes - These dyes have no natural affinity for the fabrics and are applied on fabrics with the help of another compound such as oxides of Al, Cr, Cu etc. These compounds are called mordant.

Mordants ~~are~~ acts as binding agent between the fabrics and dye.
Example:



Alizarin