# Comparison of efficiency of single and multi walled carbon nanotubes in removal of Acid Yellow 17 dyes from aqueous solutions

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## Abstract

**Background and Aim**: Dyes are organic materials with complex structures and nonbiodegredable properties that there are in variety industrial effluent such as Textile Industry and one of the main pollutants in the environment are considered. So, the aim of this study was to survey the feasibility application of Multi walled carbon nanotubes and single walled carbon nanotubes as sorbent and Comparison those for the removal of Acid Yellow 17 dye from aqueous solutions.

**Material and Methods**: This experimental study was performed in a laboratory scale and the influence of process variables such as pH, initial dye concentration and adsorbent dosage (Multi walled carbon nanotubes, single walled carbon nanotubes) on removal of Acid Yellow 17 were studied and finally, correspondence rate of data to Langmuir and freundlich isotherms were determined.

**Result**: The adsorption experiments indicated that the dye removal decreased with increasing the dye concentration and pH, also result indicated that removal efficiency was increased with increasing the adsorbent dose. Adsorption isotherm studied showed that the data for adsorption of Acid Yellow 17 onto Multi walled carbon nanotubes and single walled carbon nanotubes fitted well with Langmuir and freundlich isotherms respectively.

**Conclusion**: It is concluded that the removal efficiency of single walled carbon nanotubes is significant than Multi walled carbon nanotubes, thus it's could be used as an effective adsorbent for removing dyes from textile waste waters.

**Keyword:** Multi walled carbon nanotubes, single walled carbon nanotubes, dye removal, Acid Yellow 17 dye