Abstract

Dyes release from different industries is worth considering environmental issue at this time in the whole World. Most of the people have no accessibility of clean drinking water because of direct discharge of color containing effluents into the water bodies. The major purpose of this study was the removal of methylene blue dye from textile waste water by using low cost, easily available and eco-friendly materials. So, bentonite clay and activated carbon of Saw dust was investigated as adsorbents. Batch adsorption study was carried out to treat the methylene blue dye. Different factors like contact time and adsorbents dosage was considered for the removal of methylene blue dye. After treated methylene blue dye by various adsorbents, absorbance was checked by UV spectrophotometer at 665 nm. When methylene blue dye was removed from the sample, final concentration was assessed by calibration curve graph. The results showed that by increasing the contact time the % removal of methylene blue dye decrease and by increasing the amount of adsorbents dosage, % adsorption of methylene blue dye also increased. All adsorbents were adsorbed maximum concentration of methylene blue dye at 2.5g adsorbent dosage, while composite of both clay and activated carbon of saw dust was removed the highest percentage of methylene blue dye from waste water as compare to the activated carbon of saw dust and clay at contact time 10 min and at maximum adsorbent dosage. Fourier transform infrared spectroscopy of all adsorbents before and after dye adsorption was done to identify the functional groups in the adsorbent samples, and after adsorption, presence of new peaks at the adsorbent spectrum represent the functional group of methylene blue dye in the sample. So, the results indicate that composite of activated saw dust and bentonite clay is very useful, low cost and eco-friendly material for the removal of methylene blue dye from textile waste water.