COMPARATIVE STUDY OF PHOTO - DEGRADATION OF DYE CONGO RED BY FENTON REAGENT AND TiO_2

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ABSTRACT

COMPARATIVE STUDY OF PHOTO-DEGRADATION OF DYE CONGO RED BY FENTON REAGENT AND TiO_2

The comparative study of photo-degradation of dye Congo red by Fenton reagent and TiO_2 is investigated focusing on the percentage of photo-degradation of dye Congo red by using Fenton reagent and TiO_2. It is also to compare the most efficient method of photo-degradation between Fenton reagent and TiO_2 on degradation of dye. The photo-catalytic process was used to determine the rate of Congo red (CR) degradation efficiency by using Fenton reagent and TiO_2 and analyzed under UV light. The degradation efficiency is determined based on decolorization of Congo red dye. The chemical reaction occurs between dye and TiO_2 was form when the ·OH radical from TiO_2 attacked the CR molecule. As for the Fenton reagent, the iron Fe^{3+} reduce to Fe^{2+} react with the ·OH radicals to attacked the dye molecule for degradation process. Both of the method was tested in different parameters and irradiated under UV light. The sample was analyzed by UV-Vis spectrometry. Furthermore, the percentage degradation efficiency of Congo red was higher in Fenton reagent process rather than TiO_2. The results obtained reveals that the Fenton reagent process gives more than 100% degradation efficiency rather than TiO_2 which has less than 100% degradation efficiency.

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