

**COMPARATIVE STUDY OF PHOTO - DEGRADATION OF DYE
CONGO RED BY FENTON REAGENT AND TiO₂**

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ABSTRACT

COMPARATIVE STUDY OF PHOTO-DEGRADATION OF DYE CONGO RED BY FENTON REAGENT AND TiO₂

The comparative study of photo-degradation of dye Congo red by Fenton reagent and TiO₂ is investigated focusing on the percentage of photo-degradation of dye Congo red by using Fenton reagent and TiO₂. It is also to compare the most efficient method of photo-degradation between Fenton reagent and TiO₂ 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 TiO₂ and analyzed under UV light. The degradation efficiency is determined based on decolorization of Congo red dye. The chemical reaction occurs between dye and TiO₂ was form when the ·OH radical from TiO₂ attacked the CR molecule. As for the Fenton reagent, the iron Fe³⁺ reduce to Fe²⁺ 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 TiO₂. The results obtained reveals that the Fenton reagent process gives more than 100% degradation efficiency rather than TiO₂ which has less than 100% degradation efficiency.

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