Decolorization of Methylene Blue and Congo Red by attapulgite-based heterogeneous Fenton catalyst

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\textbf{ABSTRACT}

A kind of heterogeneous Fenton catalyst, attapulgite (ATP)-based catalyst (Fe\textsubscript{2}O\textsubscript{3}/ATP) was prepared. Its heterogeneous Fenton-like reactions were investigated for the decolorization of non-biodegradable dyes Methylene Blue (MB) and Congo Red (CR). Through a number of batch decolorization experiments under various conditions, it was found that the Fe\textsubscript{2}O\textsubscript{3}/ATP catalyst could serve as a Fenton catalyst and was effective in MB and CR decolorization. MB undergoes different decolorization performance when compared to CR because CR is a kind of azo dye otherwise MB is not. And this catalyst shows good stability during MB and CR decolorization in water in a wide range of pH (2.0–12.0).

\textbf{Keywords:} Attapulgite-based catalyst; Fe\textsubscript{2}O\textsubscript{3}; Heterogeneous reaction; Methylene blue; Congo red; Decolorization