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**Heterogeneous catalytic oxidation for the degradation of
p-nitrophenol in aqueous solution by persulfate activated with
CuFe₂O₄ magnetic nano-particles**

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Abstract: To evaluate the heterogeneous degradation of *p*-nitrophenol (PNP) in aqueous solution by catalytic oxidation process involving persulfate (PS) activated by CuFe₂O₄ magnetic nano-particles, the CuFe₂O₄/PS system was investigated in this study. CuFe₂O₄ magnetic nano-particles were synthesized with a sol-gel combustion method and then used as heterogeneous catalysts for PS activation. First, effects of CuFe₂O₄ dosage (0-40 g/L), PS dosage (0-10 mM), initial pH value (3.0-11.0) and co-existing inorganic ions on the degradation of PNP in aqueous solution by CuFe₂O₄/PS system were investigated comprehensively. In particular, the maximum PNP removal (89%) and total organic carbon (TOC) removal (81%) were obtained under the optimal conditions. Meanwhile, two control experiments (i.e., CuFe₂O₄ alone and PS alone systems) were carried out to confirm the performance in CuFe₂O₄/PS system. Furthermore, the reasonable PNP degradation pathway was proposed based on the intermediates detected by high performance liquid chromatography (HPLC). Finally, the mechanism of the CuFe₂O₄/PS system was

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