RSM-BBD optimization of Fenton Like Degradation of 4-Nitrophenol using magnetite impregnated kaoline

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Fig.S1: The powder XRD patterns of (a) raw Kaoline and (b) activated kaoline
Fig.S2: The powder XRD patterns of (a) activated kaolin and (b) AK-Fe$_3$O$_4$
Fig. S3. The point of zero charge curve of AK-Fe$_3$O$_4$ composite
Fig. S4: (a) The rate of 4-NP removal efficiency of AK, H₂O₂, Fe₃O₄, AK-Fe₃O₄, and AK-Fe₃O₄/H₂O₂; (b) the 4-NP degradation (%) by AK-Fe₃O₄/H₂O₂, Fe₃O₄/H₂O₂ and AK/H₂O₂; (c) the Pseudo-first order plot of 4-NP degradation, and (d) the apparent rate constant (min⁻¹)

Table S1: Comparison of different catalysts for degradation of 4-NP

| Catalyst name          | Temp. (K) | k(10⁻³ min⁻¹) | Ref. |
|------------------------|-----------|---------------|------|
| FeSO₄·7H₂O/H₂O₂         | 298       | 4.3           | 1    |
| Fe-MOF/H₂O₂             | 318       | 58            | 2    |
| CuFe₂O₄/H₂O₂            | 298       | 2.96          | 3    |
| Fe₃O₄/MWCNT/H₂O₂        | 313       | 14.4          | 4    |
| AK-Fe₃O₄/H₂O₂           | 298       | 9.4           | This study |

References

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