

## Supporting Information

### Improved performance of immobilized laccase for catalytic degradation of synthetic dyes using redox mediators

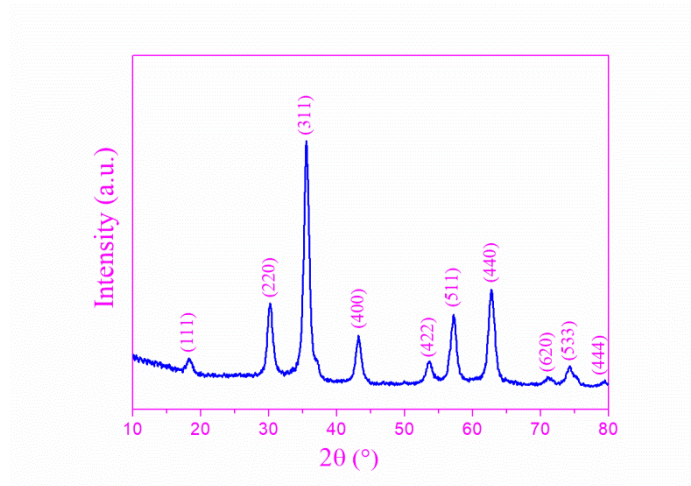
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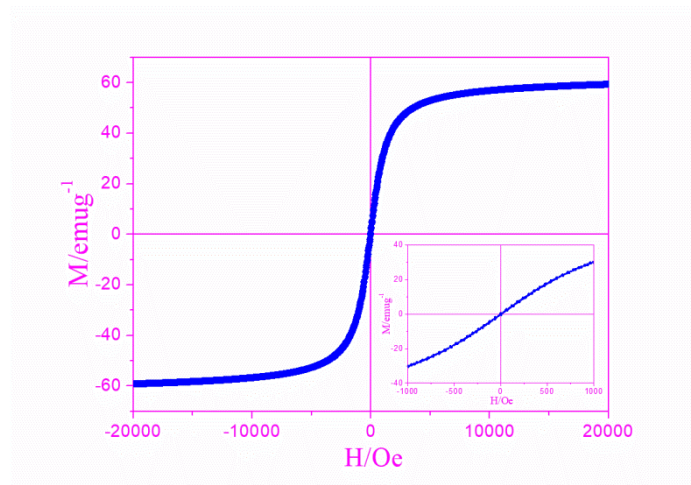
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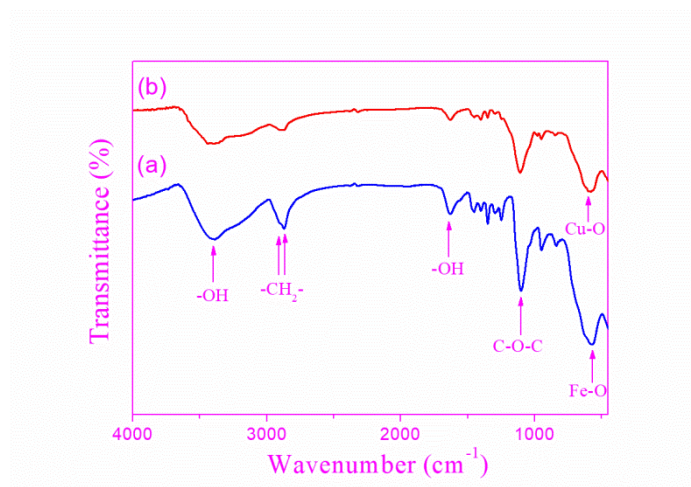
<sup>‡</sup> Authors contributed equally to the publication.



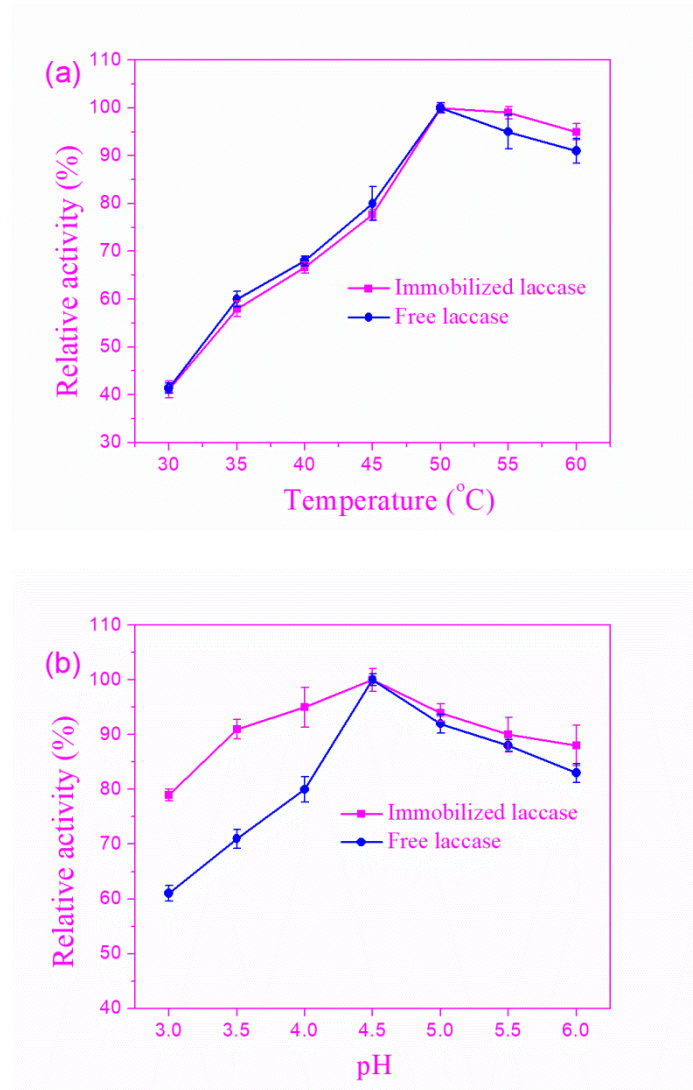
**Fig. S1.** XRD patterns of Fe<sub>3</sub>O<sub>4</sub>-PEG 2000 nanoparticles.



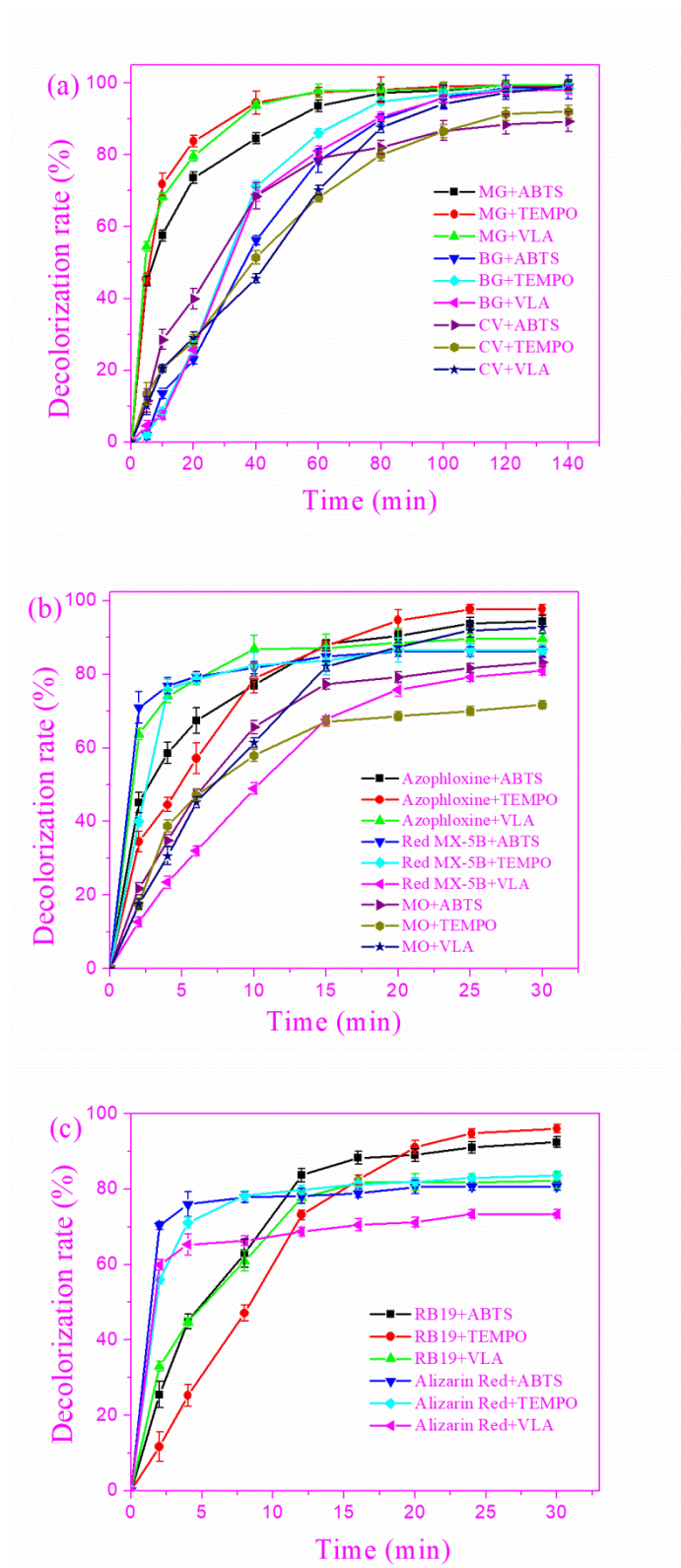
**Fig. S2.** The magnetic hysteresis loop of Fe<sub>3</sub>O<sub>4</sub>-PEG 2000 nanoparticles at 300 K.



**Fig. S3.** FT-IR spectra of (a) Fe<sub>3</sub>O<sub>4</sub>-PEG 2000 and (b) Fe<sub>3</sub>O<sub>4</sub>-PEG 2000-Cu<sup>2+</sup> nanoparticles.



**Fig. S4.** Effects of (a) temperature and (b) pH value on the activities of free and immobilized laccases.



**Fig. S5.** Degradation kinetics of (a) triphenylmethane, (b) azo and (c) anthraquinone dyes by the immobilized laccase in the present of ABTS, VLA and TEMPO mediators at pH 4.5 and 50 °C.