

Electronic Supplementary Information for:

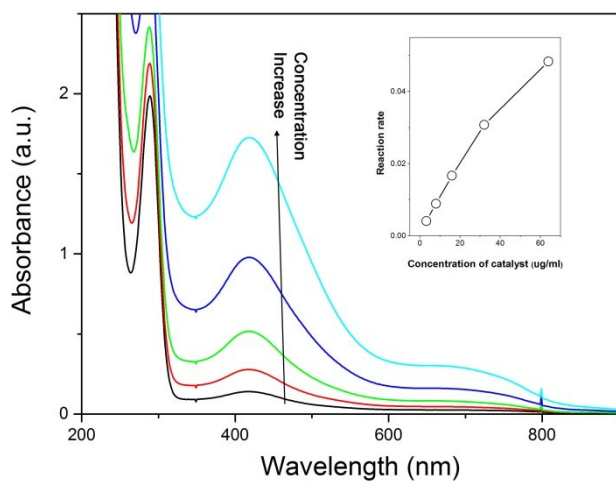
Peroxidase-like Activity of  $\text{Co}_3\text{O}_4$  Nanoparticles Used for Biodetection and  
Evaluation of Antioxidant Behavior

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**Figure S1.** UV-vis absorption spectra of samples containing 20  $\mu\text{l}$  0.1 M OPD, 20  $\mu\text{l}$  0.1 M  $\text{H}_2\text{O}_2$  and  $\text{Co}_3\text{O}_4$  NPs with different dosage: 2, 5, 10, 20 and 40  $\mu\text{l}$ . Inset shows the dependence of OPD oxidation rate on the concentration of  $\text{Co}_3\text{O}_4$  nanoparticles.

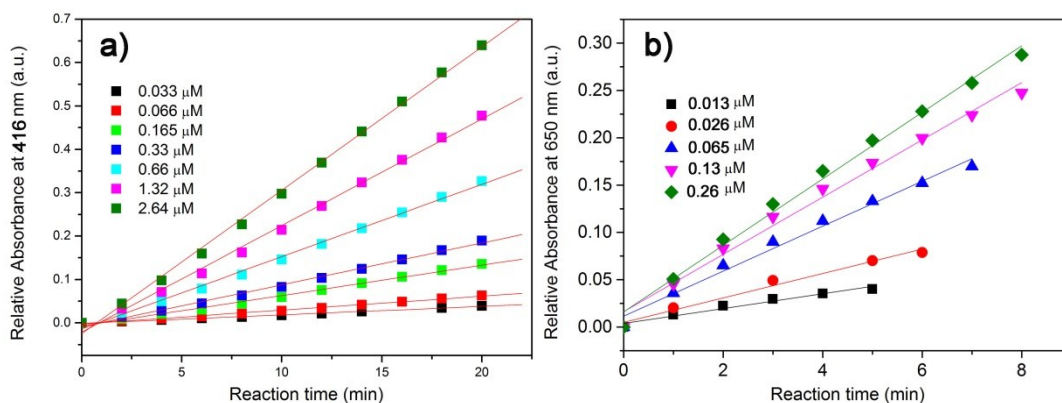


Figure S2. Effect of OPD (a) and TMB (b) concentration on their reaction rate catalyzed by  $\text{Co}_3\text{O}_4$  nanoparticles. Absorbance variation of OPD (a) and TMB (c) oxidation over time at different substrate concentration.

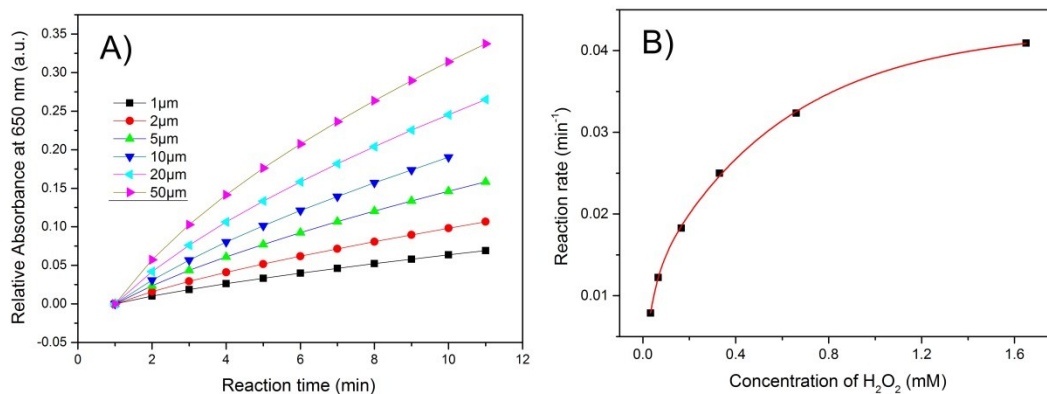


Figure S3. Effect of hydrogen peroxide concentration on the reaction rate of TMB oxidation catalyzed by  $\text{Co}_3\text{O}_4$  nanoparticles. (A) shows the absorbance evolution over reaction time at different  $\text{H}_2\text{O}_2$  concentration for TMB oxidation.

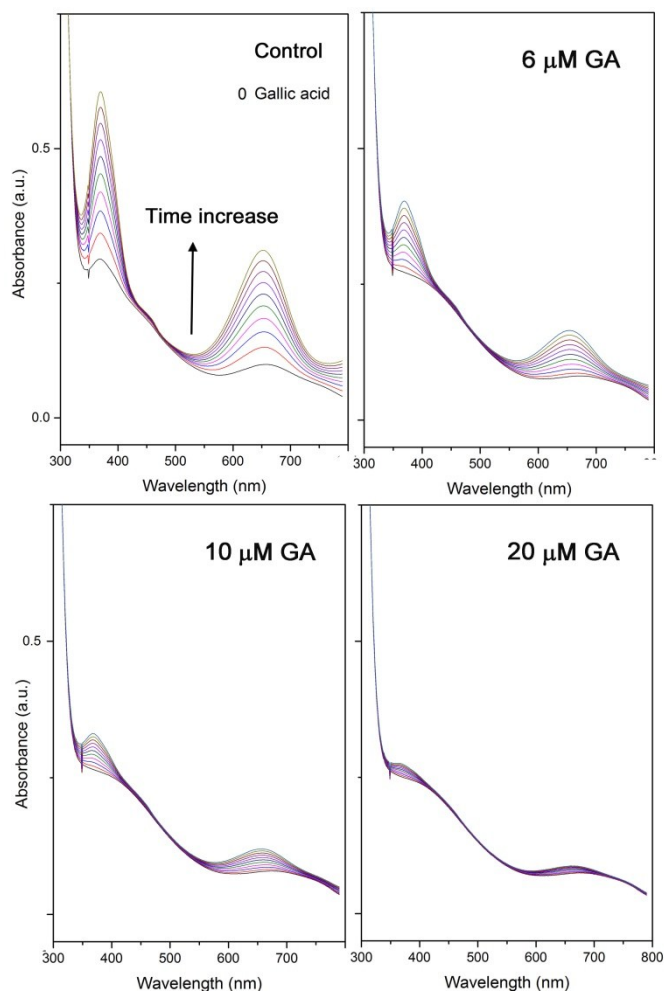
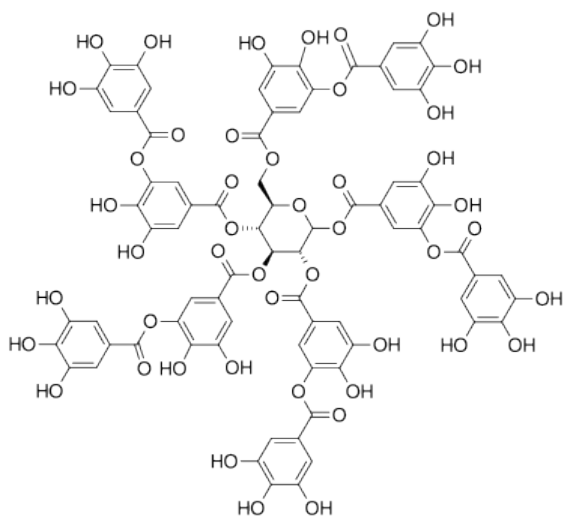
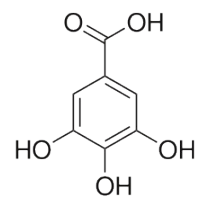


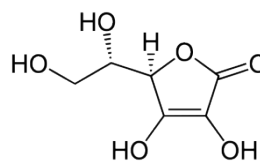
Figure S4. UV-Vis spectra evolution of catalytic oxidation of TMB by Co<sub>3</sub>O<sub>4</sub> NPs over time in the absence and presence of 6, 10 and 20 μM GA.



Tannic acid



Gallic acid



Ascorbic acid

Figure S5. Chemical structures of gallic acid, tannic acid and ascorbic acid.

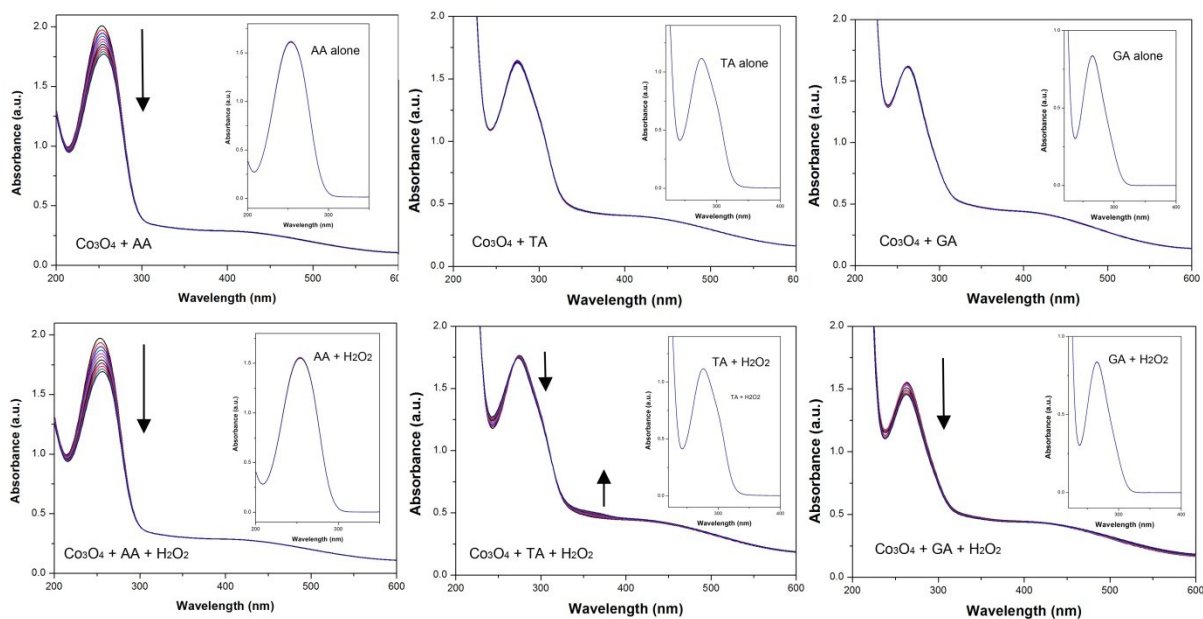


Figure S6. The evolutions of UV-Vis spectra over time for AA, TA and GA catalyzed by Co<sub>3</sub>O<sub>4</sub> NPs in the absence and presence of hydrogen peroxide. Insets show the control experiment without Co<sub>3</sub>O<sub>4</sub> NPs. Conditions: 0.17 mM AA, 0.17 mM TA, 0.15 mM GA, 20  $\mu$ l Co<sub>3</sub>O<sub>4</sub> NPs, 0.67 mM H<sub>2</sub>O<sub>2</sub>, 2 min/scan.