Electronic Supplementary Information:

Laccase immobilized on tannic acid-mediated surface modification of halloysite nanotubes and its efficient bisphenol A degradation

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Experiments

Biocompatibility assay

MTT viability assay was performed to examine the biocompatibility of HNTs-TA according to the previous studies with some modification [42]. In brief, normal L-02 cells were seeded in 96-well plate with approximately 5×10^3 cells per well and cultured in 5 % CO_2 at 37^{o}C overnight. Subsequently, free culture medium containing different concentrate of HNTs or HNTs-TA (0-200 μg/mL) was added to replace the original culture medium for another 24 h, respectively. After the incubation time, the *in vitro* toxicity of L-02 cells induced by HNTs-TA was measured by MTT assay.

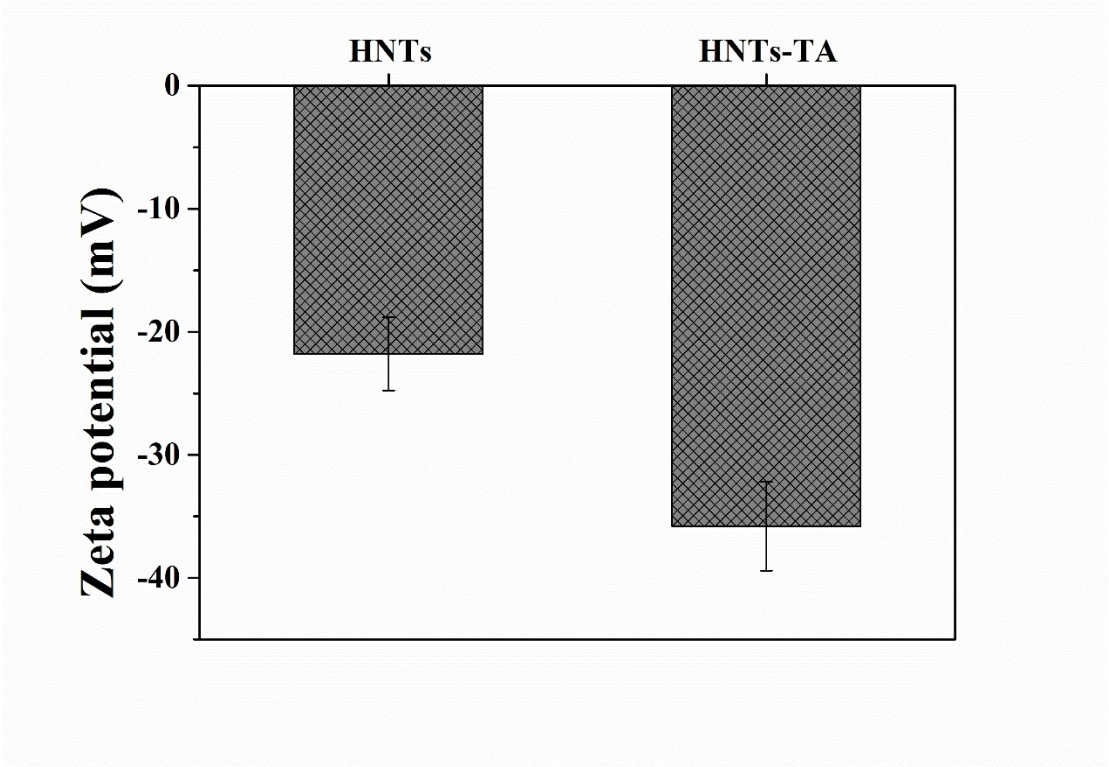

Fig. S1. Zeta potential of HNTs and HNTs-TA.

As shown in Fig. S1, the zeta potential value of HNTs was -21.8 mV. After HNTs modified by tannic acid (TA), the zeta potential values of HNTs-TA were decreased to -35.8 mV due to the presence of plentiful OH groups present in TA, indicating HNTs were successfully functionalized by tannic acid.

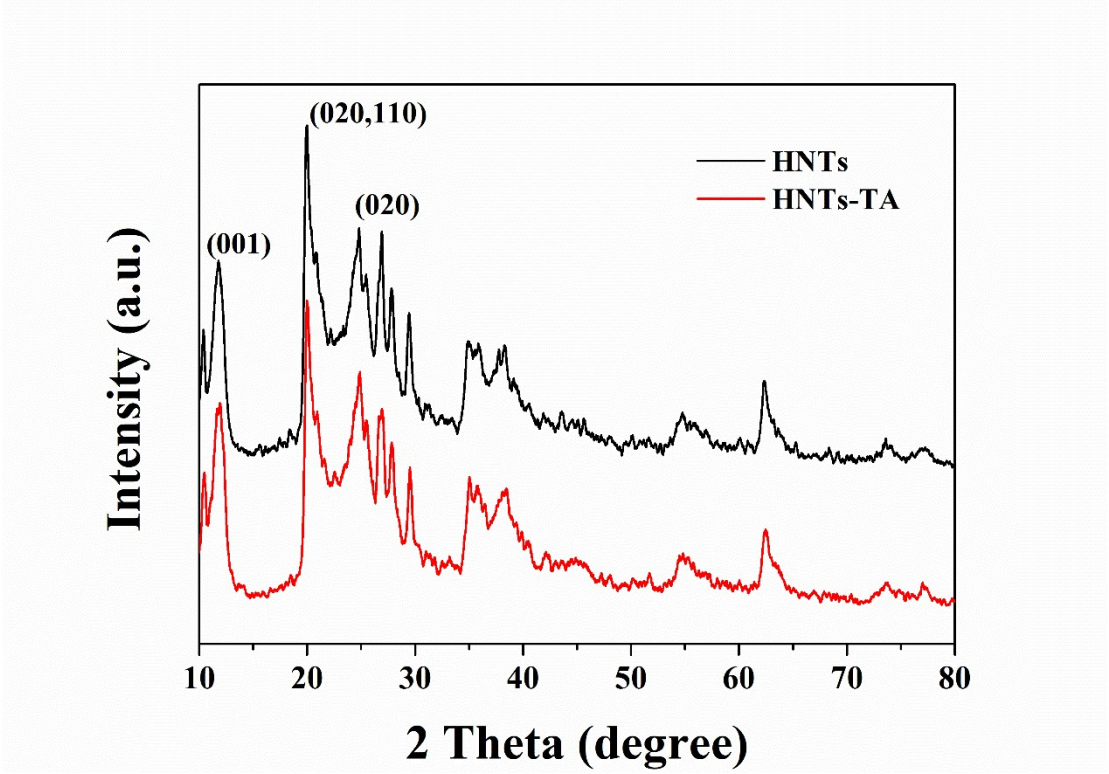

Fig. S2. XRD patterns of HNTs and HNTs-TA.

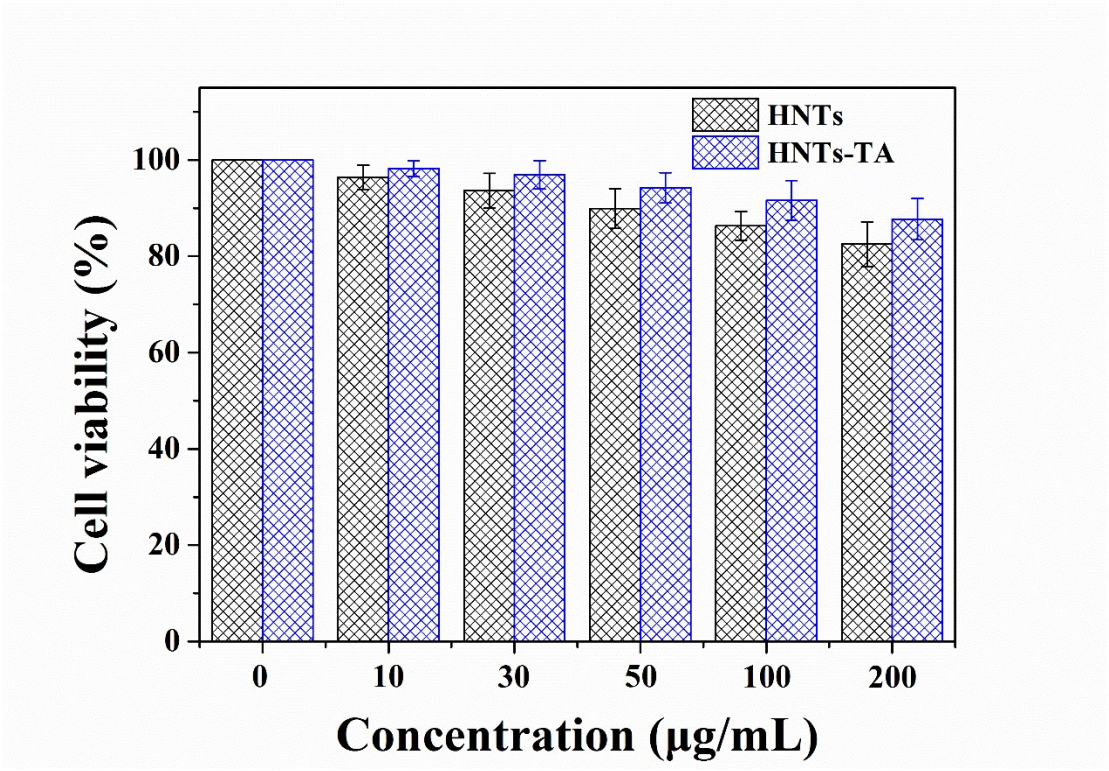

Fig. S3. Cell viability of L-02 cells after incubation with HNTs or HNTs-TA at different concentration (0-200 μg/mL).

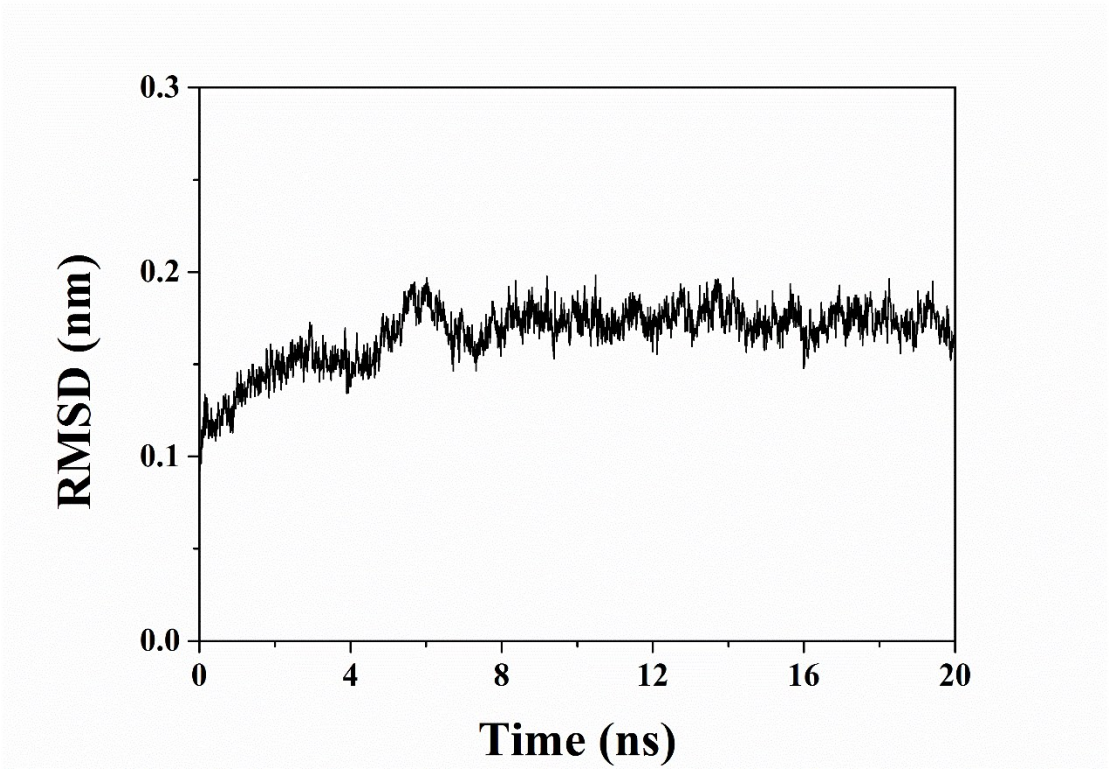

Fig. S4. The evolution of root-mean-square deviation (RMSD) of free laccase versus simulation time.

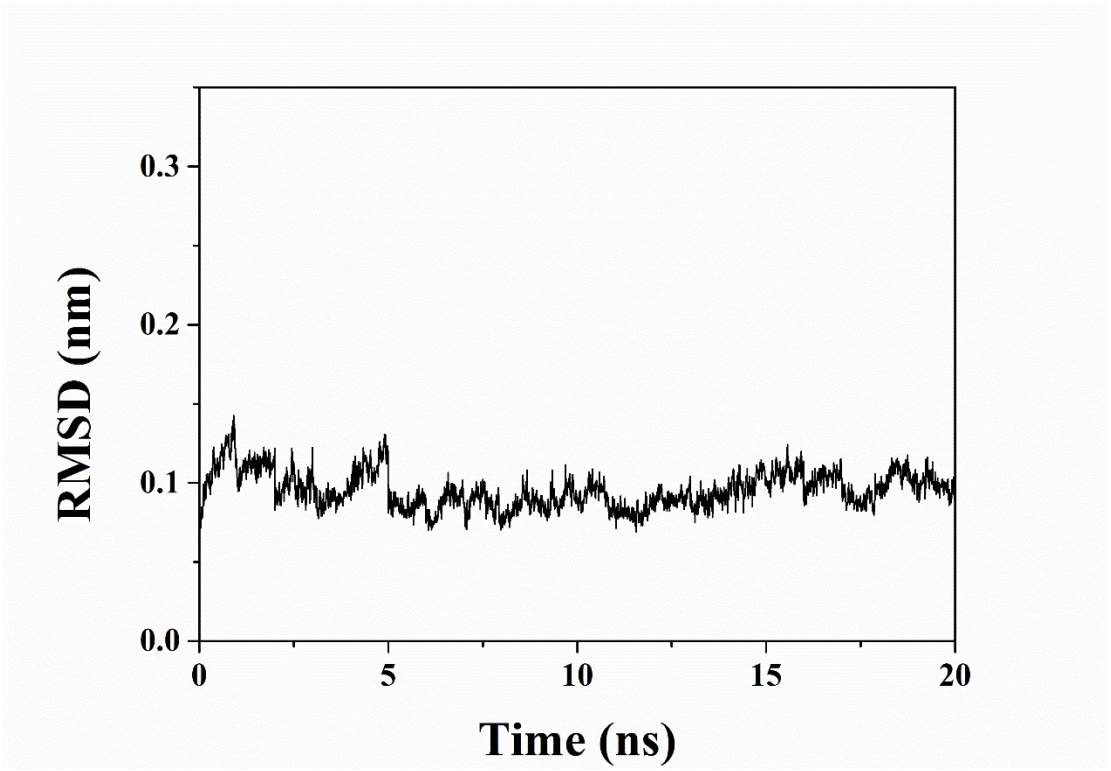

Fig. S5. The evolution of root-mean-square deviation (RMSD) of immobilized laccase versus simulation time.

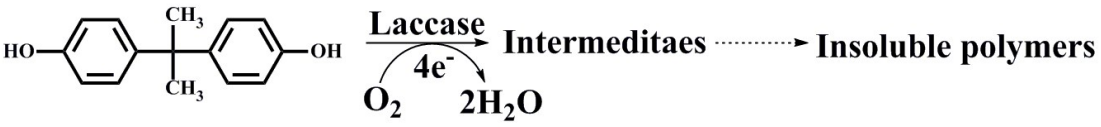

Fig. S6. Proposed pathway of BPA removal by laccase-mediated biocatalytic reaction.

Reference

[1] J.P. Xia, Y.N. Du, L.P. Huang, B. Chaurasiya, J.S. Tu, T.J. Webster, C.M. Sun, Redox-responsive micelles from disulfide bond-bridged hyaluronic acid-tocopherol succinate for the treatment of melanoma, Nanomed-Nanotechnol, 14 (2018) 713-723.