Electronic Supplementary Material (ESI) for RSC Advances

Electronic Supplementary Information

Quantitative detection of HO• generated in high temperature H_2O_2 bleaching system with a novel fluorescent probe benzenepentacarboxylic acid

Fang Si,[ab] Xuan Zhang*[a] and Kelu Yan*[ab]

[a] *School of Chemistry, Chemical Engineering and biotechnology, Donghua University, Shanghai 201620, P. R. China. E-mail: xzhang@dhu.edu.cn; klyan@dhu.edu.cn; Tel.: +86 021 67792619; Fax: +86 021 67792619*

[b] *National Engineering Research Center for Dyeing and Finishing of Textiles, Donghua University, Shanghai 201620, P. R. China*

Contents

1. ESI-MS spectra of reaction mixtures of BA (left) and TA (right) with H_2O_2 under alkaline and high temperature conditions

2. Scavenging effect of HO• with DMSO

3. Comparison of HO• generation in H_2O_2 alkali system and Fenton buffer system

4. ^{1}H NMR spectra of HBA

5. ^{13}C NMR spectra of HBA

6. ESI-MS spectra of HBA

1. ESI-MS spectra of reaction mixtures of BA (left) and TA (right) with H_2O_2 under alkaline and high temperature conditions

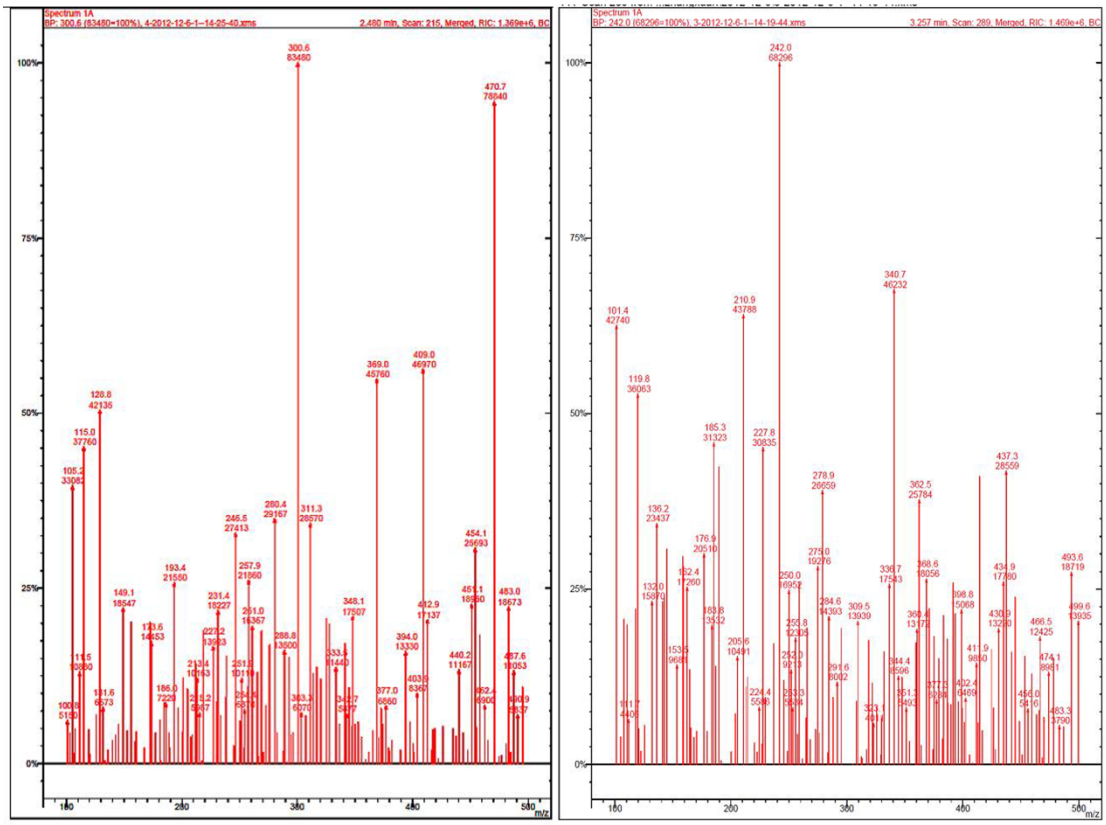

Fig. S1 ESI-MS spectra of reaction mixtures of BA (left) and TA (right) with H_2O_2 under alkaline and high temperature conditions. BA (4×10^{-4} mol l^{-1}); TA (4×10^{-4} mol l^{-1}); H_2O_2 (2.2×10^{-4} mol l^{-1}); T=80℃; pH = 10.0; t=60 min.

2. Scavenging effect of HO• with DMSO

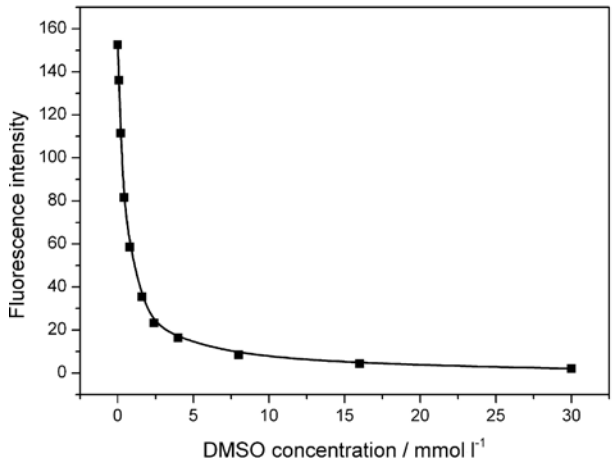

Fig. S2. Scavenging effect of HO• with DMSO. DMSO (0.08-30 mmol l^{-1}); BA (4×10^{-4} mol

l^{-1}); H_2O_2 (2.2×10^{-4} mol l^{-1}); T=80℃; pH = 10.0; t=60 min.

3. Comparison of HO• generation in H_2O_2 alkali system and Fenton buffer system

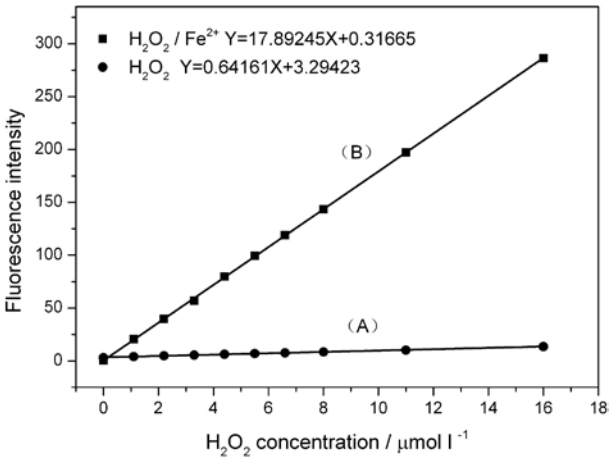

Fig. S3. Comparison of HO• generation in H_2O_2 alkali system and Fenton buffer system. (A) H_2O_2 alkaline system: BA 4×10^{-4} mol l^{-1}, T=80℃, pH = 10.0, t=60 min. (B) Fe^{2+}/H_2O_2 buffer system: BA (20 μmol l^{-1}), Fe(II) (8 μmol l^{-1}), KH_2PO_4-K_2HPO_4 (0.02 mol l^{-1}, pH 7.4), Room temperature, t=30 min. H_2O_2 (1×10^{-6}-1.6×10^{-5} mol l^{-1}).

4. ^{1}H NMR spectra of HBA

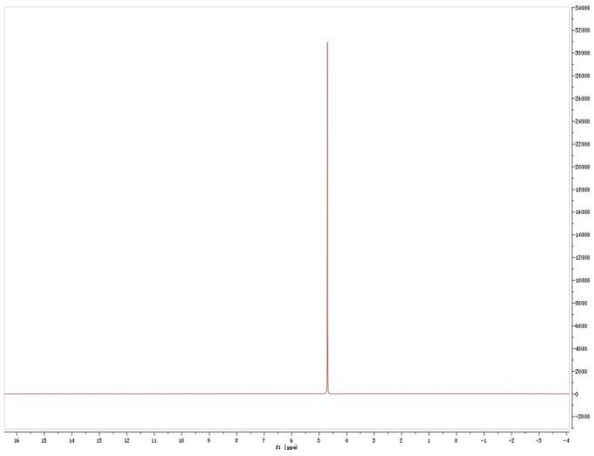

Fig. S4. ^{1}H NMR spectrum of HBA.

5. ^{13}C NMR spectra of HBA

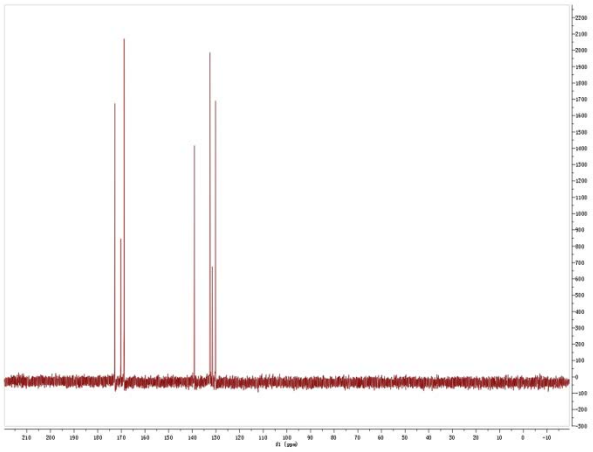

Fig. S5. ^{13}C NMR spectrum of HBA.

6. ESI-MS spectra of HBA

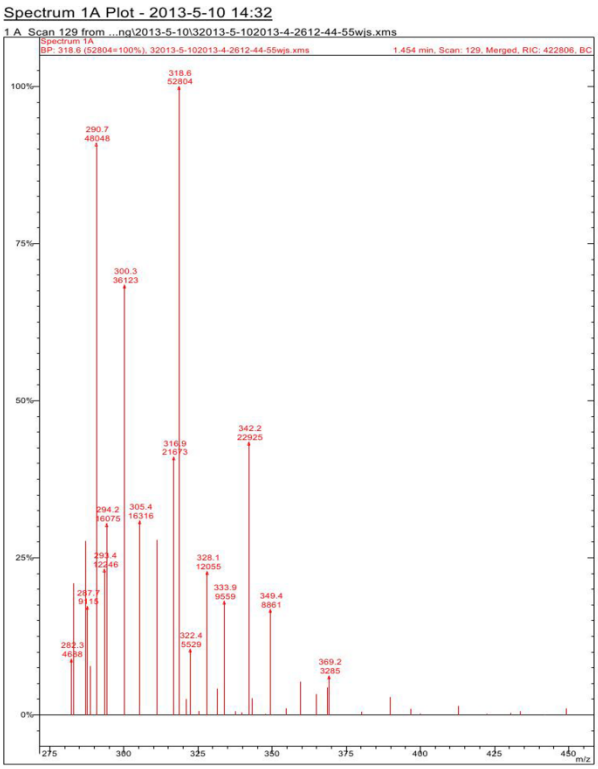

Fig. S6. ESI-MS spectrum of HBA.