



## Supplement of

## Optical and chemical properties and oxidative potential of aqueous-phase products from OH and <sup>3</sup>C\*-initiated photooxidation of eugenol

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Figure S1. (a) Effect of ROS scavengers on eugenol degradation and (b) Pseudo-first-order reaction rate constants under  ${}^{3}C^{*}$ -initiated reaction. The concentration of eugenol was 0.3 mM, and the molar ratios of eugenol to quencher TBA, NaN<sub>3</sub>, TMP and SOD, were 1.5, 0.15, 0.075 and 2.5 respectively.



Figure S2. EPR spectra using (a) TEMP as a  ${}^{1}O_{2}$  trapping agent in the  ${}^{3}C^{*}$  oxidation and (b) DMPO as •OH trapping agent in the OH-initiated oxidation.



**Figure S3.** Ratio of residue concentration to initial concentration  $(C_t/C_0)$  as a function of reaction time with (a) *p*-BQ quencher and (b) TBA quencher



**Figure S4.** Plot of  $\ln(C_t/C_0)$  versus reaction time for quenching experiments under OH system. Pseudo first-order reaction rate constants (k) were also presented. The mole ratio of eugenol to quencher *p*-BQ and TBA was 0.8 and 0.75 respectively.



**Figure S5.** DO concentrations as a function of reaction time for (a) Direct and (b) OH-initiated reaction



**Figure S6.** EEM spectra of (a) pure eugenol, (b) pure DMB ( ${}^{3}C^{*}$  precursor), (c) solution at the end of reaction (23 h) in direct photolysis, and (d) in OH oxidation.



Figure S7. The total ion chromatograph (TIC) of GC-MS of extracted products under  ${}^{3}C^{*}$  oxidation before and after photolysis of 1, 11, and 23 h, respectively.