

Supplementary Information for Analytical method

Evaluating the Antioxidant Capacity of Polyphenols with an Off-On

Fluorescence Probe and the Mechanism Study

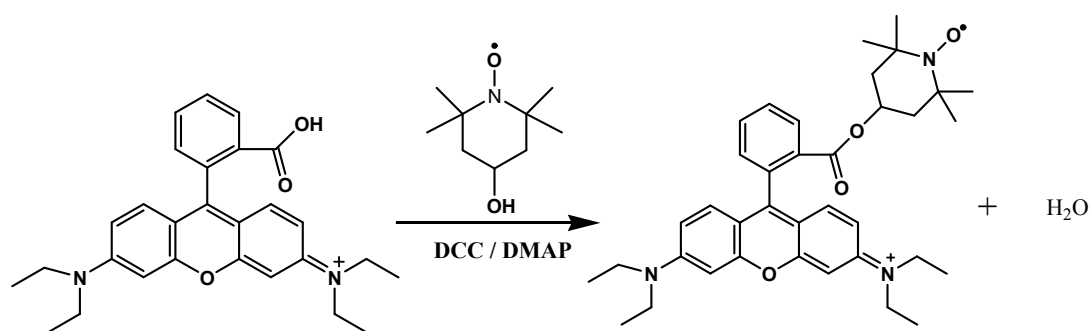
Linying Cao^{a,b}, Hui Yu^{a,b}, , Shijun Shao^a, Shuai Wang^{a*}, Yong Guo^{a*}

^a *Key Laboratory of Chemistry of Northwestern Plant Resources and Key Laboratory for Natural Medicine of Gansu Province, Lanzhou institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, P. R. China.*

^b *University of Chinese Academy of Sciences, Beijing 100039, PR China*

* Corresponding author. Tel: (+) 86 931 4968274. Fax: (+) 86 931 8277088.

E-mail Address: guoyong@licp.cas.cn; shuaiw@licp.cas.cn



Scheme S1 The synthetic route of the RNO•.

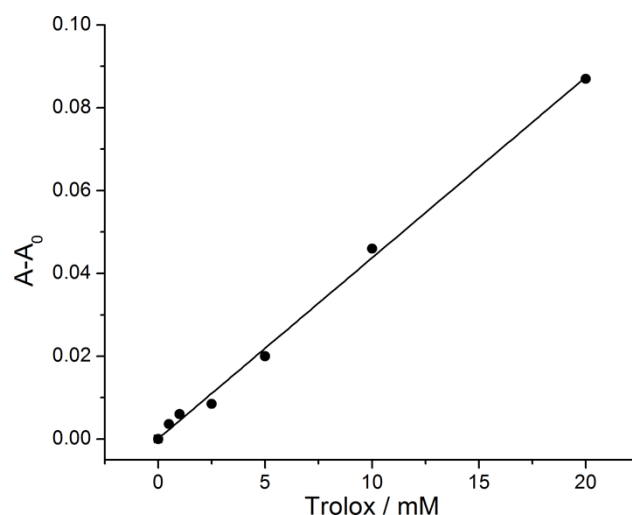


Fig.S1 The linear relationships between the changes of absorbance at 353 nm and the concentrations of trolox for reactions (10 μ M RNO \bullet react with trolox (0, 0.5, 1, 2.5, 5, 10, 20 mM) for 2 h in methanol. The UV-Vis spectra were shown in Fig.1 B.

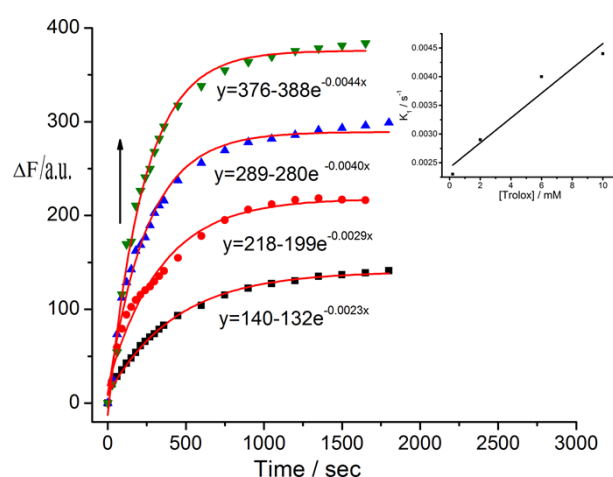


Fig.S2 Fluorescence-time profile for reactions between different concentration (0.2(■), 2(●), 6(▲), 10(▼) mM) of trolox and RNO \bullet (10 μ M). The inset is the linear relationship between the first-order rate constant k_1 and the concentration of trolox.

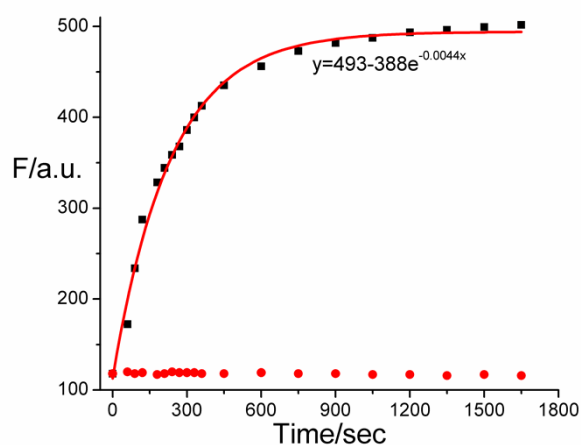


Fig.S3 Fluorescence-time profile for reactions between trolox and RNO• (■ denotes 10 mM trolox reacting with 10 μ M RNO•; ● denotes 10 μ M RNO• alone, F denote the fluorescence intensity at λ_{em} 588 nm).

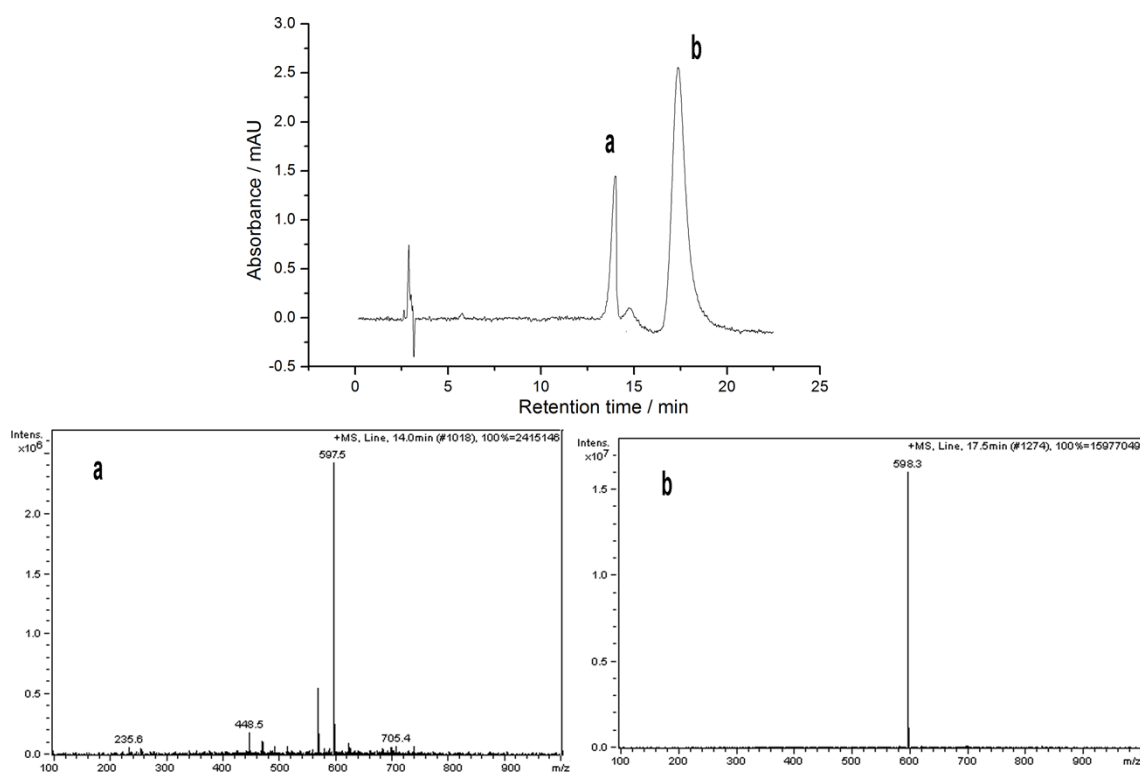


Fig.S4 HPLC-UV/Vis/MS detection of the reacting products (2 μ M RNO• react with 20 mM trolox in methanol for 2 h). UV/Vis was detected at 556 nm. Peak a retention time 14.0 min; peak b retention time 17.5 min. The MS spectra of peak a and peak b were obtained on an Agilent 1100 series LC/MS.

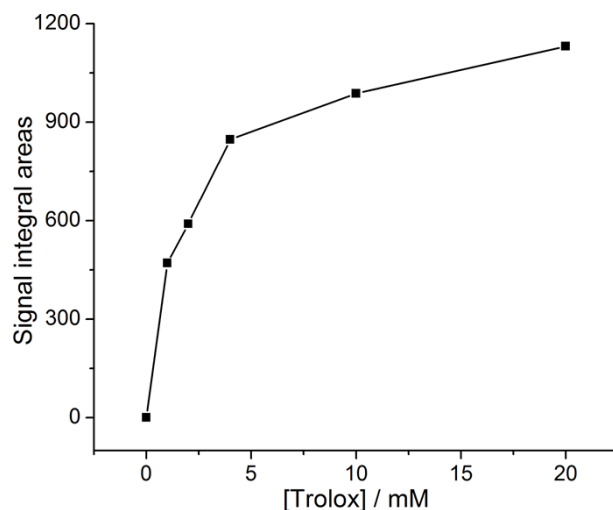


Fig.S5 The signal integral areas of peak b (RNOH, retention time 19.5 min) detected by HPLC-FLD (0, 1, 2, 4, 10, 20 mM trolox react with 20 μ M RNO• for 2 h in methanol). FLD: λ_{ex} 556 nm, λ_{em} 588 nm.

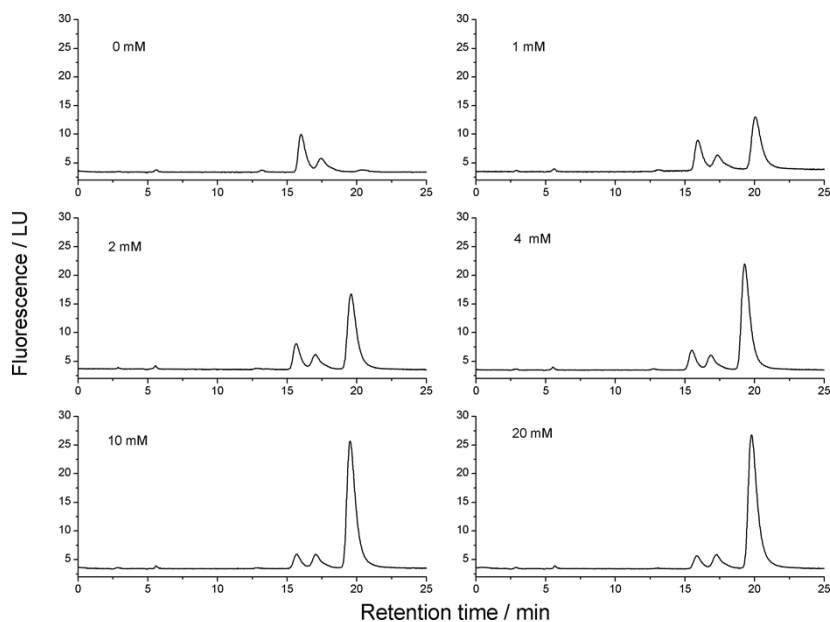


Fig.S6 HPLC-UV/Vis detecting of reaction (0, 1, 2, 4, 10, 20 mM trolox react with 20 μ M RNO• for 2 h in methanol).