Supplementary Information for

Dual role of organic matter in the anaerobic degradation of triclosan

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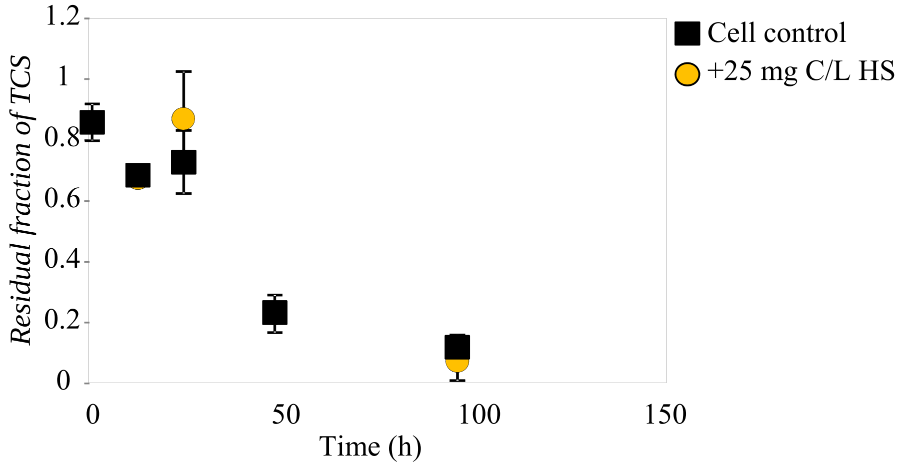

Figure S1 Degradation of triclosan (TCS) at pH 7 (10 mM PIPES) by only the strain CN32 or CN32 in the presence of 25 mg C/L humic substance (HS).

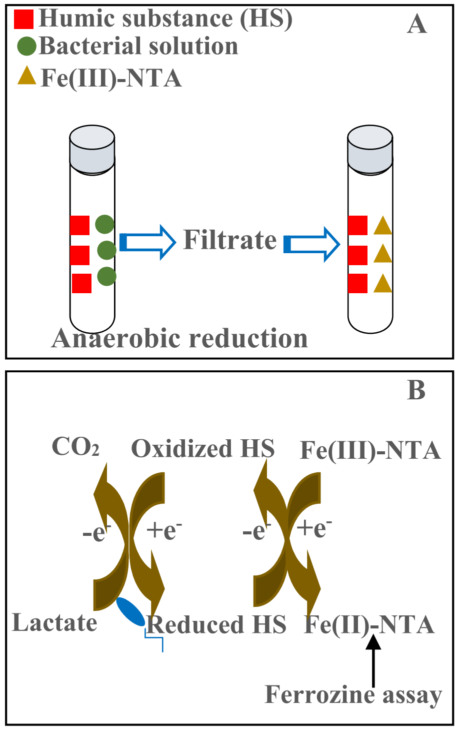

Figure S2 Scheme for the measurement of electron accepted by HS: (A) For the first step, HS was reduced by bacteria; for the second step, reduced HS reacted with Fe(III)-NTA, when bacteria cells were filtered out; (B) Electron flows through lactate to HS to Fe(III)-NTA.

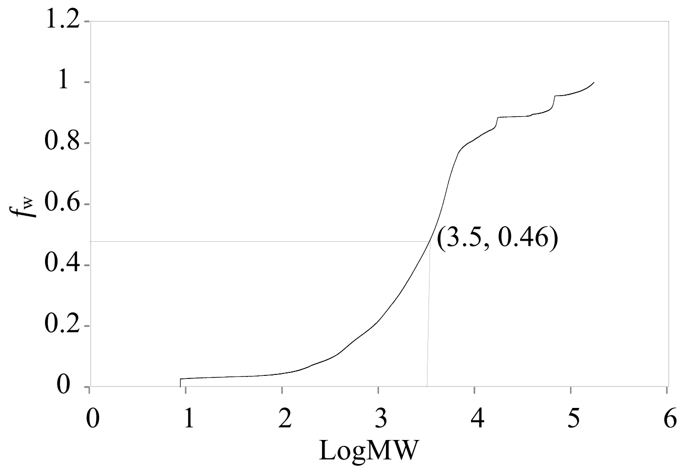

Figure S3 Relationship between molecular weight (MW) of the HS and weight-based fraction (f_w). The cutoff of dialysis bag used in the sorption study was 3500 Da, with the LogMW of 3.5, and the corresponding f_w was 0.46. Details for the analysis could be found in previous studies (Yang et al., 2012, 2013).

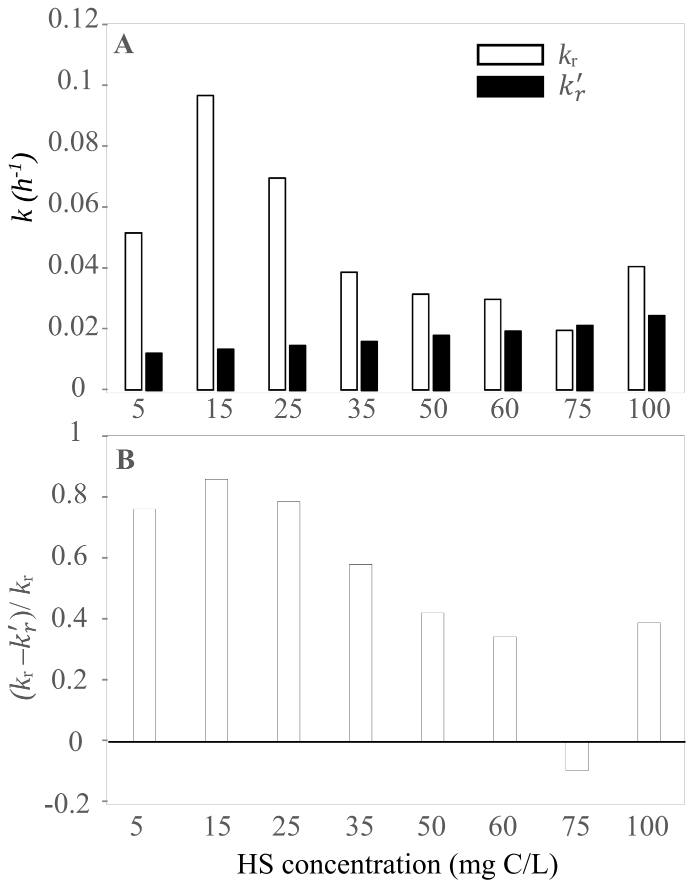

Figure S4 (A) HS concentration-dependent rate constant k_r obtained from the degradation kinetics of microbial degradation in the presence of HS and k_r' derived from the microbial degradation and abiotic reactions between TCS and HS; (B) Relative difference between k_r and k_r'.

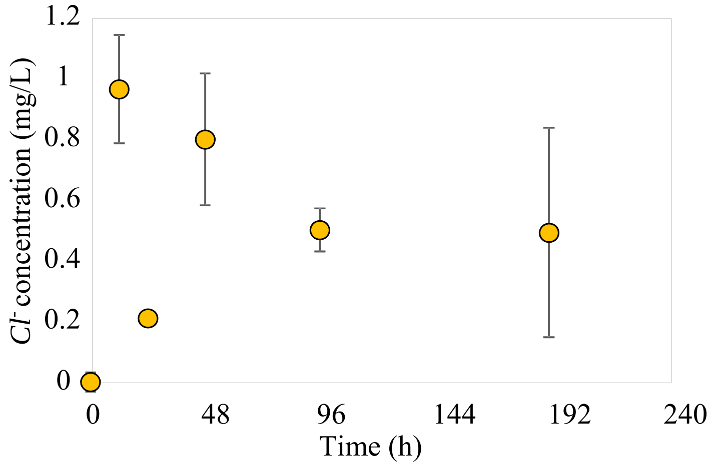

Figure S5 Production of Cl^- during the microbial reduction of TCS by the strain CN32 in the presence of 25 mg C/L HS. The Cl^- concentration was calibrated by that in the control sample of 25 mg C/L HS with CN32. Cl^- was measured by a Dionex ion chromatography (IC) system.

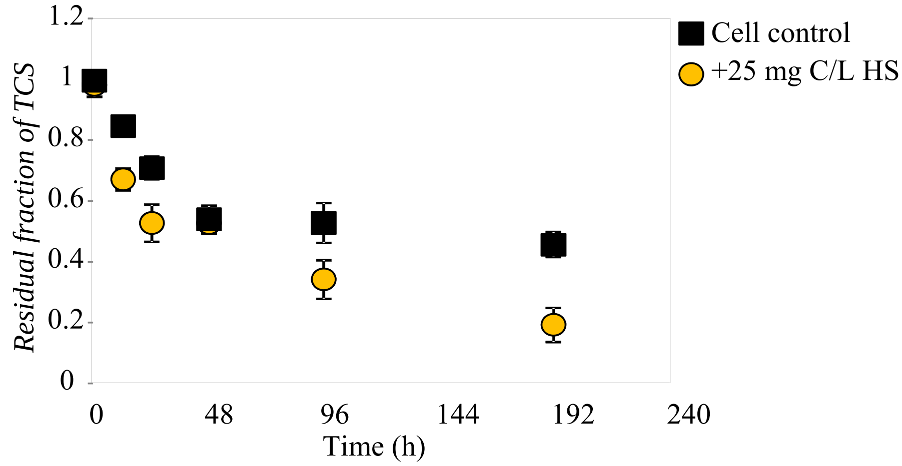

Figure S6 Abiotic degradation of TCS by microbially reduced 25 mg C/L HS. HS was reduced by CN32 (10^8 cell/mL) at pH 9 (20 mM bicarbonate and 1 mM PIPES) with 20 mM lactate as an electron donor for 1 d. And then the samples were filtered, and filtrate was reacted with TCS. Cell control represent bacterial solution without HS going through the same process.

Table S1 The degradation rate constant for the microbial degradation of triclosan (TCS) in the presence of different concentrations of humic substances (HS).

HS (mg C/L)	Degradation rate constant (h^{-1})	Standard deviation	R^2 for the fitness	Half-life (h)
0	1.2E-02	1.1E-03	0.9	59
5	5.2E-02	4.4E-03	0.95	13
15	9.7E-02	7.1E-03	0.98	7
25	7.0E-02	6.7E-03	0.96	10
35	3.9E-02	5.3E-03	0.85	18
50	3.2E-02	2.6E-03	0.95	22
60	3.0E-02	2.1E-03	0.96	23
75	2.0E-02	1.8E-03	0.92	35
100	4.1E-02	6.8E-03	0.86	17

References:

Y. Yang, L. Shu, X. L. Wang, B. S. Xing and S. Tao. *Environmental Toxicology and Chemistry*, 2012, 31, 1431-1437.

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