

# Supplementary Information

## The effects of 1,1,1-trichloroethane and triclocarban on reductive dechlorination in a TCE-reducing culture

Li-Lian Wen<sup>1,2</sup>, Jia-Xian Chen<sup>1,2</sup>, Jia-Yi Fang<sup>3</sup>, Ang Li<sup>4</sup>, He-Ping Zhao<sup>1,2\*</sup>

1. Department of Environmental Engineering, College of Environmental and Resource Science, Zhejiang University, Hangzhou, China.

2. Zhejiang Prov Key Lab Water Pollut Control & Envi, Zhejiang University, Hangzhou, Zhejiang, China.

3. College of Agriculture and Biotechnology, Zhejiang University, Hangzhou, China.

4. School of Environment, Harbin Institute of Technology, Harbin, China

\* Correspondance to Dr. He-Ping Zhao. Tel (Fax): 0086-571-88982739, E-mail: [zhaohp@zju.edu.cn](mailto:zhaohp@zju.edu.cn); [hopechoil@hotmail.com](mailto:hopechoil@hotmail.com)

**Table S1.** Electron-donor distribution based on method of Ziv-El et al. (2012).

Steady-state end product(mM)	Biochemical Process	$\frac{me^{-}eq}{mmol}$	steady-state end product ( $\frac{me^{-}eq}{L}$ )
[cis-DCE],[VC],[ethene]	1) $C_2HCl_3+3H_2=C_2H_4+3Cl^-+3H^+$	6	[cis-DCE]×2+[VC]×4+[ethene]×6
	2) $C_2HCl_3+2H_2=C_2H_3Cl+2Cl^-+2H^+$	4	
	3) $C_2HCl_3+H_2=C_2H_2Cl_2+Cl^-+H^+$	2	
[DCA], [CA]	1) $C_2H_3Cl_3+2H_2=C_2H_5Cl+2Cl^-+2H^+$	4	[DCA]×2+[CA]×4
	2) $C_2H_3Cl_3+H_2=C_2H_4Cl_2+Cl^-+H^+$	2	
[Acetate]	1) $2HCO_3^- +4H_2+H^+=CH_3COO^-+2H_2O$	8	[Acetate]×8
[Methane]	1) $HCO_3^- +4H_2+H^+=CH_4+3H_2O$	8	[CH <sub>4</sub> ]×8
[Propionate]	1) $CH_3CH_2OCOO^-+H_2=CH_3CH_2COO^-+H_2O$	2	[Propionate]×8

**Table S2.** Primers and PCR conditions for tested genes

PCR Program	Primers	Sequence	Target Gene	Ref	Slope	Efficiency
95 °C 2 min (95 °C 30 sec 58 °C 30 sec 72 °C 10 sec)×30 72 °C 10 min	Dhc1200F Dhc1271R	5'-CTGGAGCTAATCCCCAAAGCT-3' 5'-CAACTTCATGCAGGCGGG-3'	<i>DHC</i>	He et al., 2003	-3.290	1.01
94 °C 10 min (94°C 30 sec 58 °C 300 sec 72 °C 60 sec)×40 72°C 1 min	Mlas rev	5'-GGTGGTGTMGDDTTCACMCARTA-3' 5'-CGTTCATBGCGTAGTTVGGRTAGT-3'	<i>mcrA</i>	Steinberg et al., 2008	-3.221	1.04
95 °C 2 min (95 °C 30 sec 58 °C 30 sec 72 °C 20 sec)×30 72 °C 10 min	fhs1 FTHFS-r	5'- GTWTGGGCWAARGGYGGMGAAGG-3' 5'-GTATTGDGTYTTRGCCATACA-3'	<i>FTHF S</i>	Xu et al., 2009	-3.442	0.95
95 °C 2 min (95 °C 30 sec 58 °C 30 sec 72 °C 10 sec)×30 72 °C 10 min	TceA1270 F TceA1336 R	5'-ATCCAGATTATGACCCTGGTGAA-3' 5'-GCGGCATATATTAGGGCATCTT-3'	<i>TceA</i>	Johnson et al., 2005	-3.339	0.99
95 °C 2 min (95 °C 30 sec 58 °C 30 sec 72 °C 10 sec)×30 72 °C 10 min	Vcr1022F Vcr1093R	5'-CGGGCGGATGCACTATTTT-3' 5'-GAATAGTCCGTGCCCTTCTC-3'	<i>Vcr</i>	Ritalahti et al., 2006	-3.339	0.99

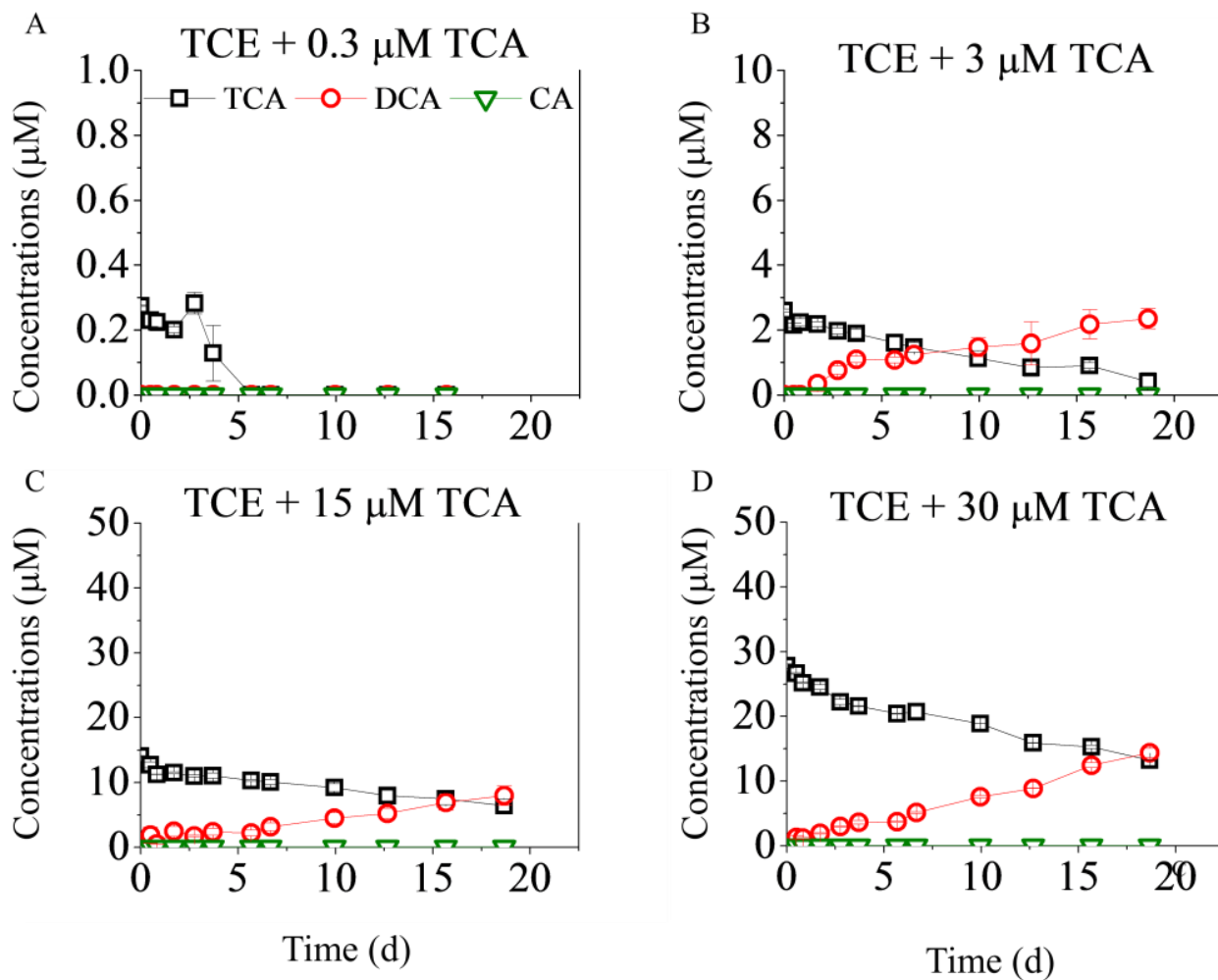


Figure S1. The reductive dechlorination of chlorinated ethanes in consortia amended with different concentrations of TCA. The left Y-axis is the concentrations of chlorinated ethanes. Batch Test A: cultures with 0.3  $\mu\text{M}$  TCA added; B: cultures with 3  $\mu\text{M}$  TCA added; C: cultures with 15  $\mu\text{M}$  TCA added; D: cultures with 30  $\mu\text{M}$  TCA added.

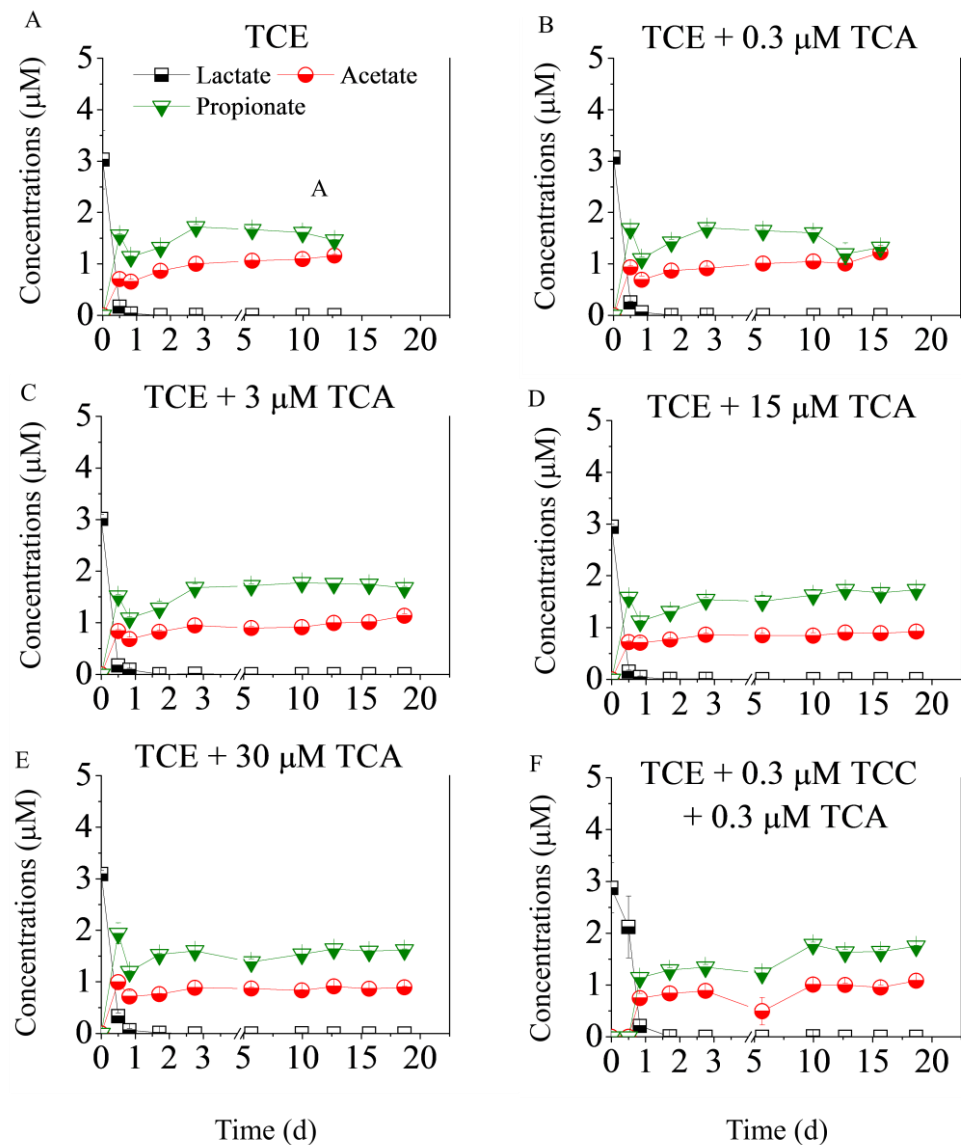


Figure S2. The concentrations of organic acids in the cultures exposed to different concentrations of TCA. The Y-axis is the concentration of volatile fatty acids. Batch test A: only TCE added; B: TCE + 0.3  $\mu\text{M}$  TCA; C: TCE + 3  $\mu\text{M}$  TCA; D: TCE + 15  $\mu\text{M}$  TCA; E: TCE + 30  $\mu\text{M}$  TCA; F: TCE + 0.3  $\mu\text{M}$  TCC + 0.3  $\mu\text{M}$  TCA.

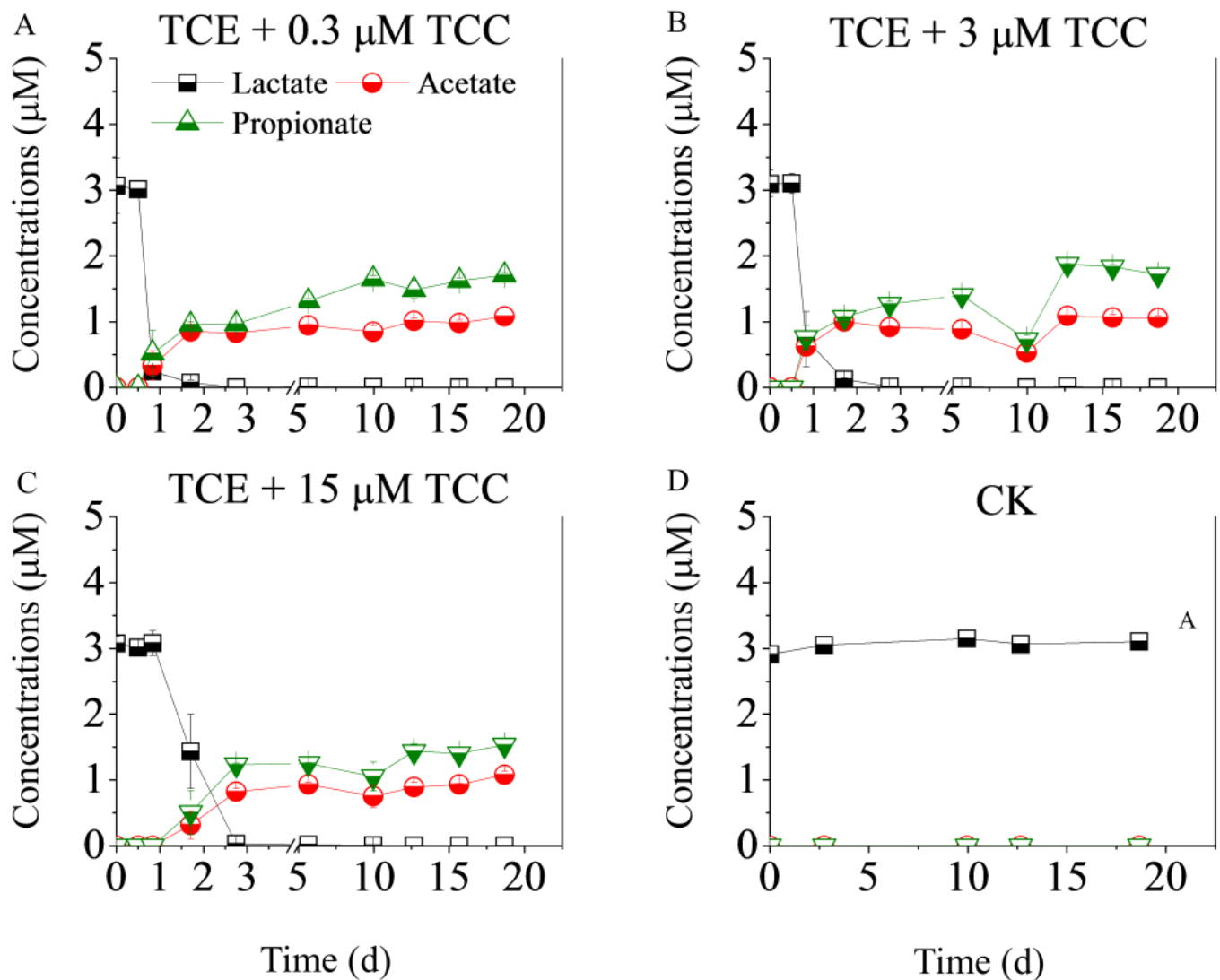


Figure S3. The concentrations of organic acids in the culture amended with different concentrations of TCC. The Y-axis is the concentration of volatile fatty acids. Batch test A: TCE + 0.3  $\mu\text{M}$  TCC added; B: TCE + 3  $\mu\text{M}$  TCC added; C: TCE + 15  $\mu\text{M}$  TCC added; D: negative control.

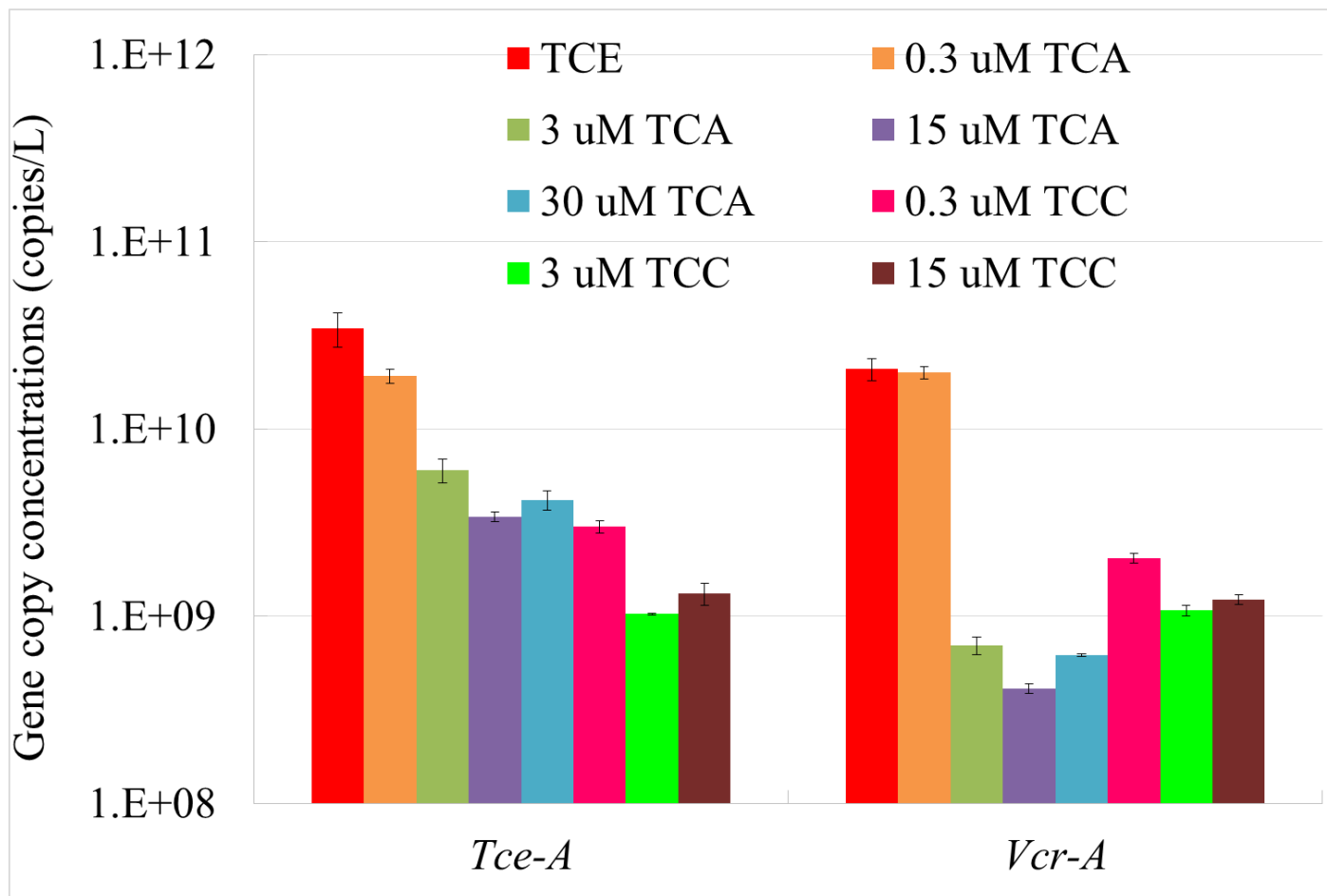


Figure S4. The concentrations of reductive dehalogenase genes copies in the cultures amended with different concentrations of TCA and TCC.

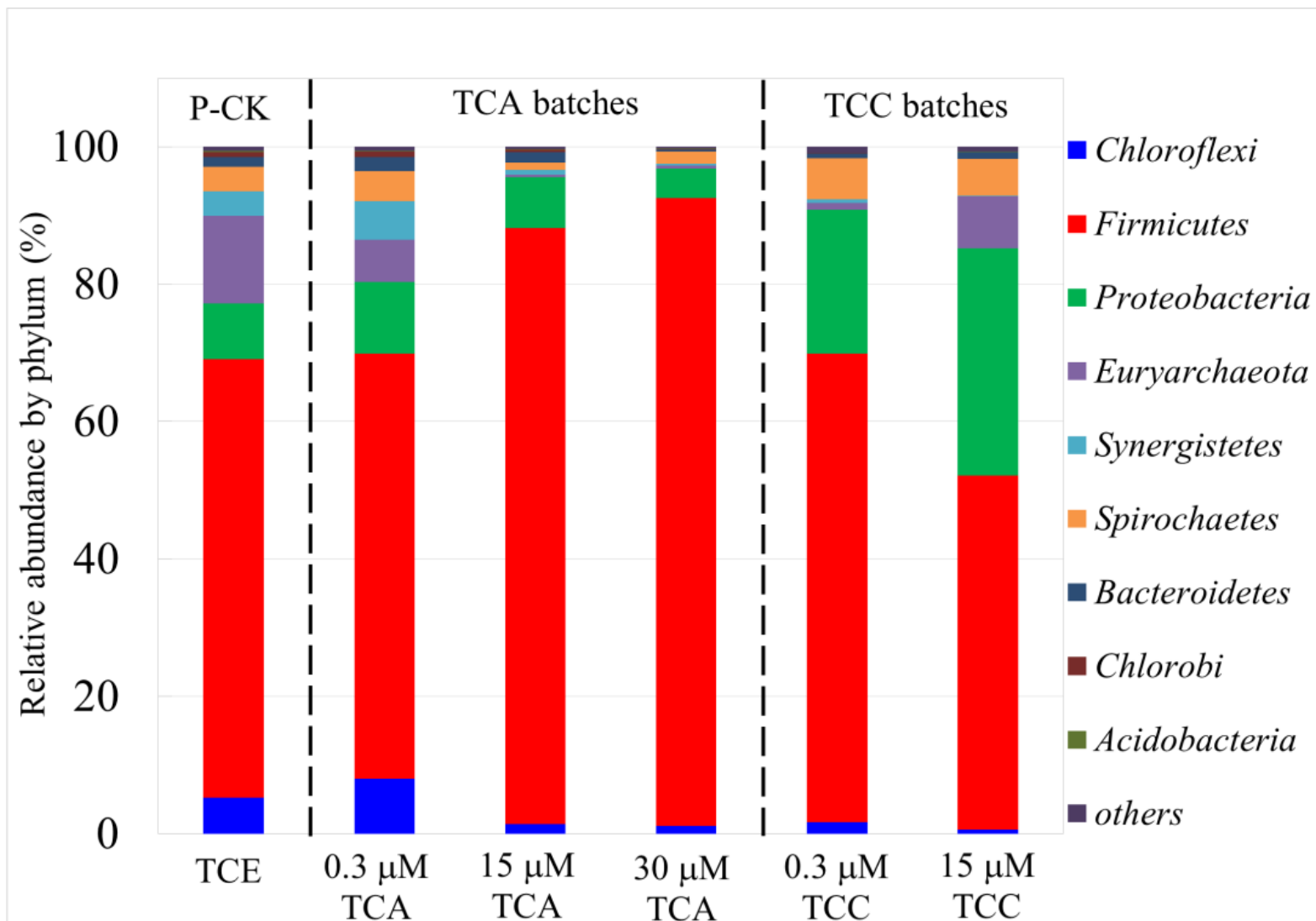


Figure S5. The relative abundance of microbial structure compositions at the phylum level in different cultures. P-CK: the culture added with 0.3 mM TCE set as a positive control; TCA batches: cultures added with 0.3, 15, 30 μM of TCA respectively; TCC batches: cultures added with 0.3, 15 μM of TCC respectively.



## References

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