Supplementary Material

Table S1 Number and CODs of different series

Series	Blank	Control	1#	2#	3#	4#	5#	6#	7#
COD (mg/L)	0	0	240	479	959	2396	3834	4793	9585
2-butenal manufacture wastewater (mL)	0	0	0.5	1.0	2.0	5.0	8.0	10.0	20.0
deionized water (mL)	50	50	49.5	49.0	48.0	45.0	42.0	40.0	30.0

Table S2 Different indices of community diversity for different samples

Sample	Effective reads	OTUs	Coverage	ACE	Chao1	Shannon
Control	62380	4224	0.9552	8294	7627	7.34
S3	63439	4673	0.9505	9085	8145	7.42
S4	62350	4768	0.9464	9751	8613	7.33
S5	63094	4672	0.9477	9894	8985	7.14
S6	63072	5004	0.9448	9899	8833	7.67
S7	62616	4368	0.9524	9107	8179	6.94

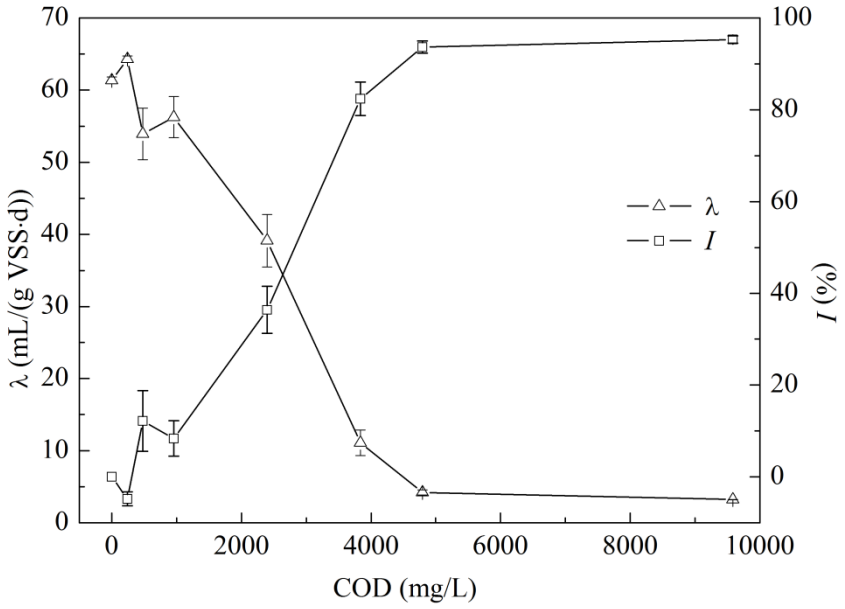

Fig. S1 Effects of different COD on SMA of anaerobic granular sludge

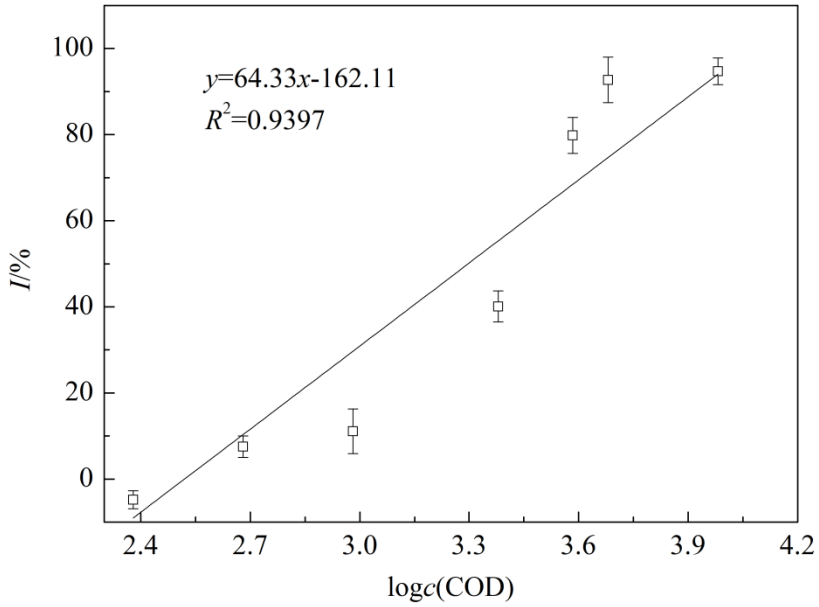

Fig. S2 Plot of COD logarithm of 2-butenal wastewater versus inhibition rate of methanogenic activity

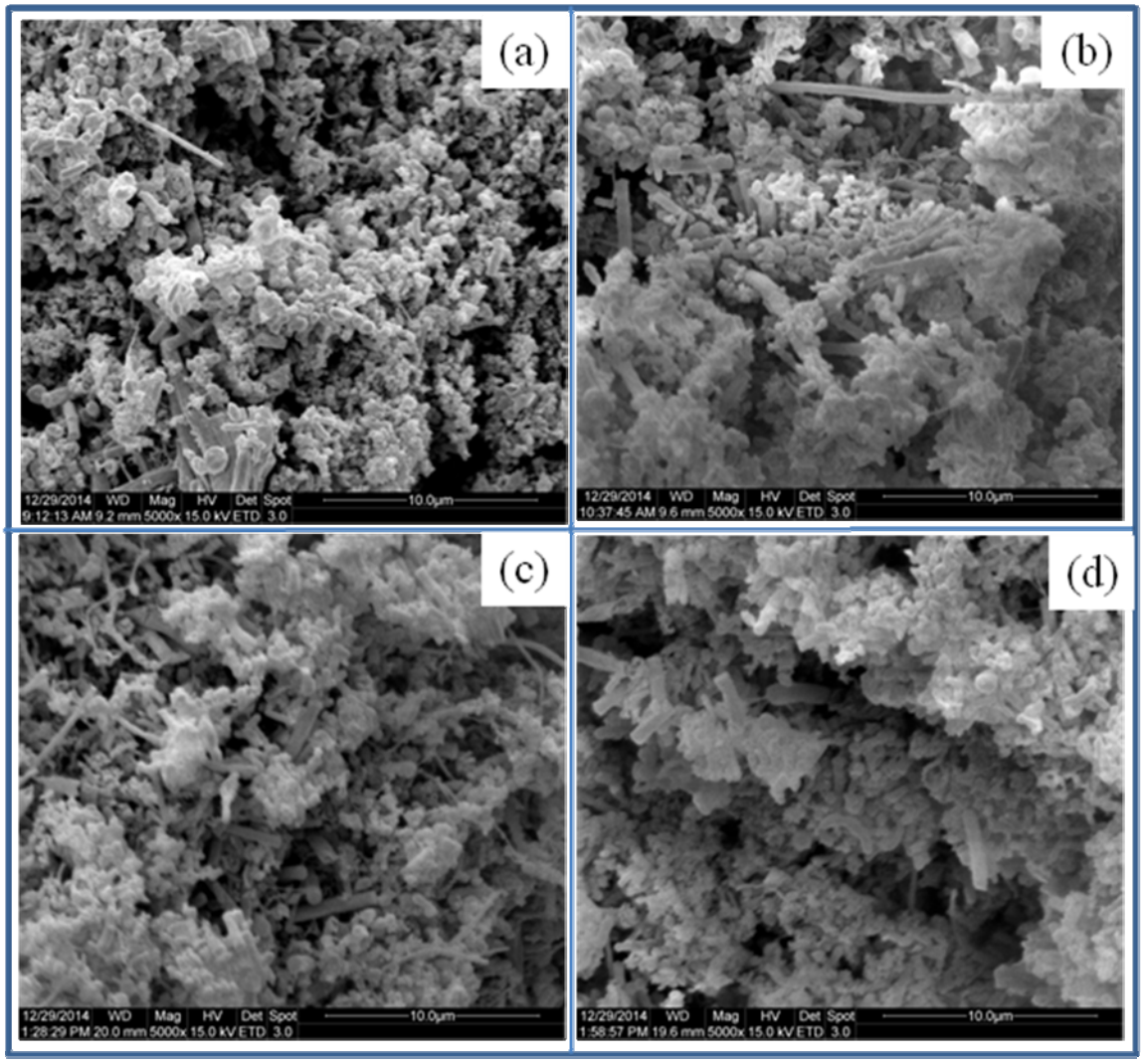

Fig. S3 SEM micrographs of anaerobic granular sludge (a) control; (b) 3#; (c) 5#; (d) 7#

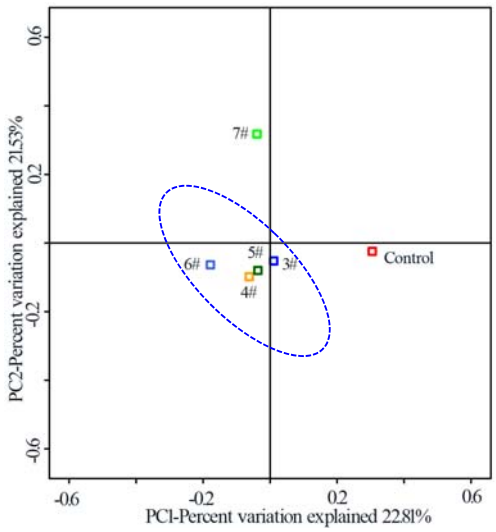

Fig. S4 PCA analysis of all six samples based on the composition of microbial communities

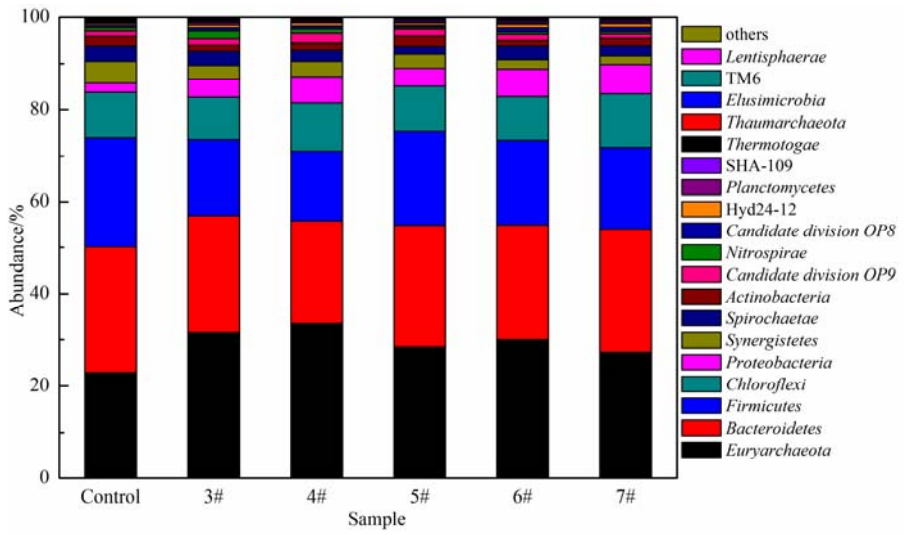

Fig. S5 Relative abundance of bacterial community under different CODs on the phylum level