

Supplementary Information

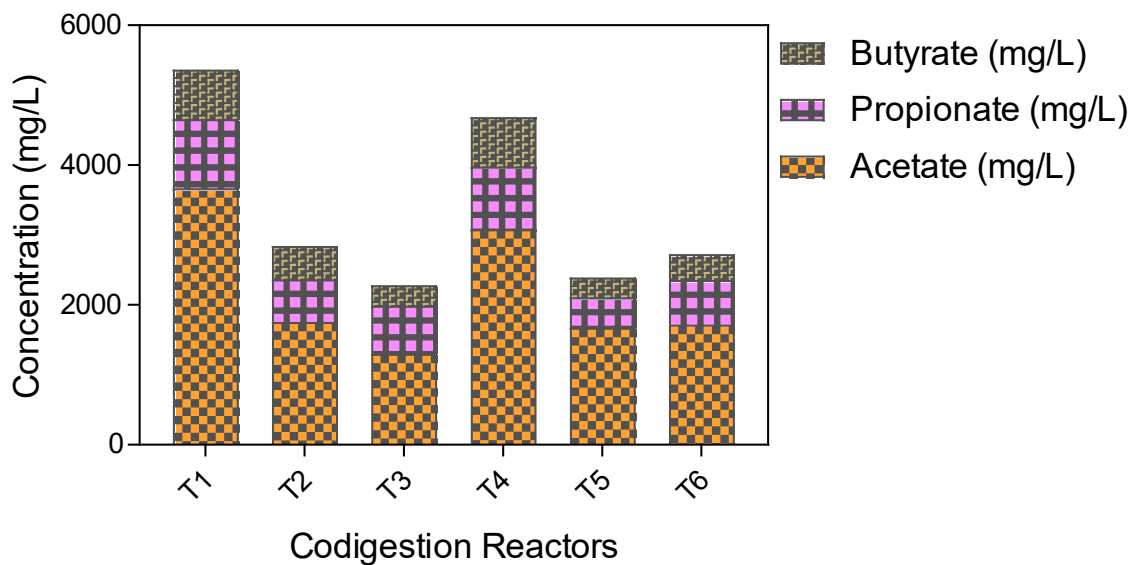
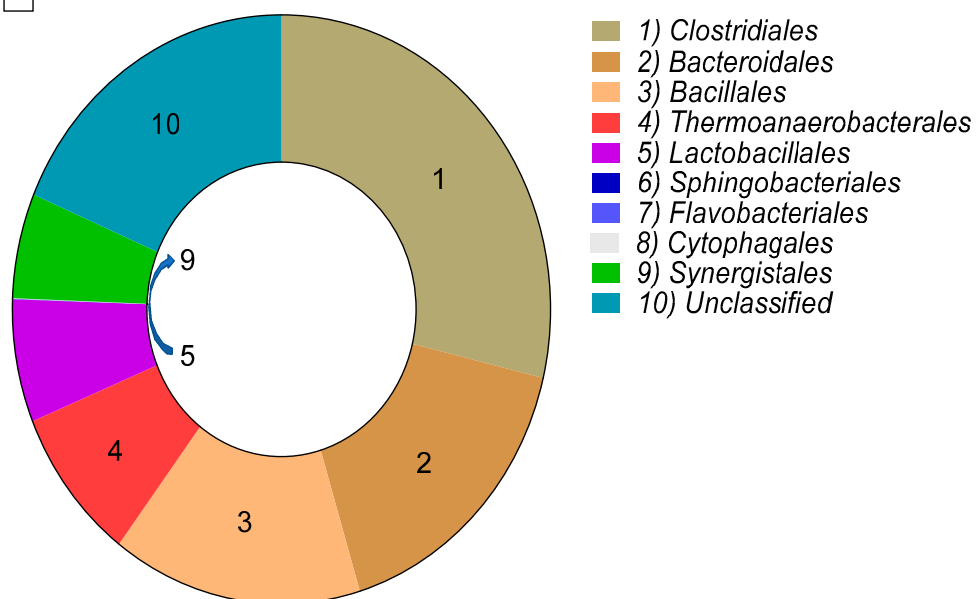
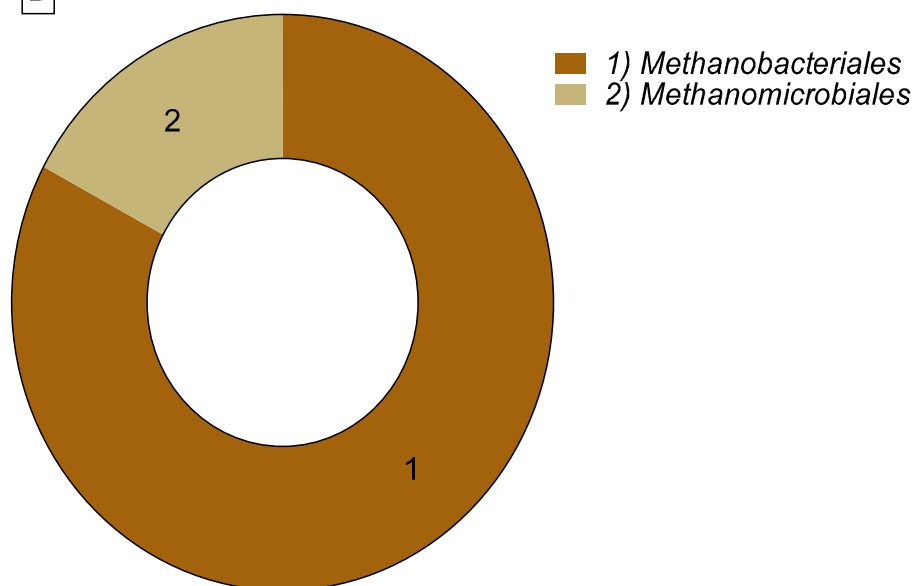


Figure S1. Concentration of different Volatile Fatty acids (Acetate, Propionate and Acetate) in different Codigestion tests.

A



B



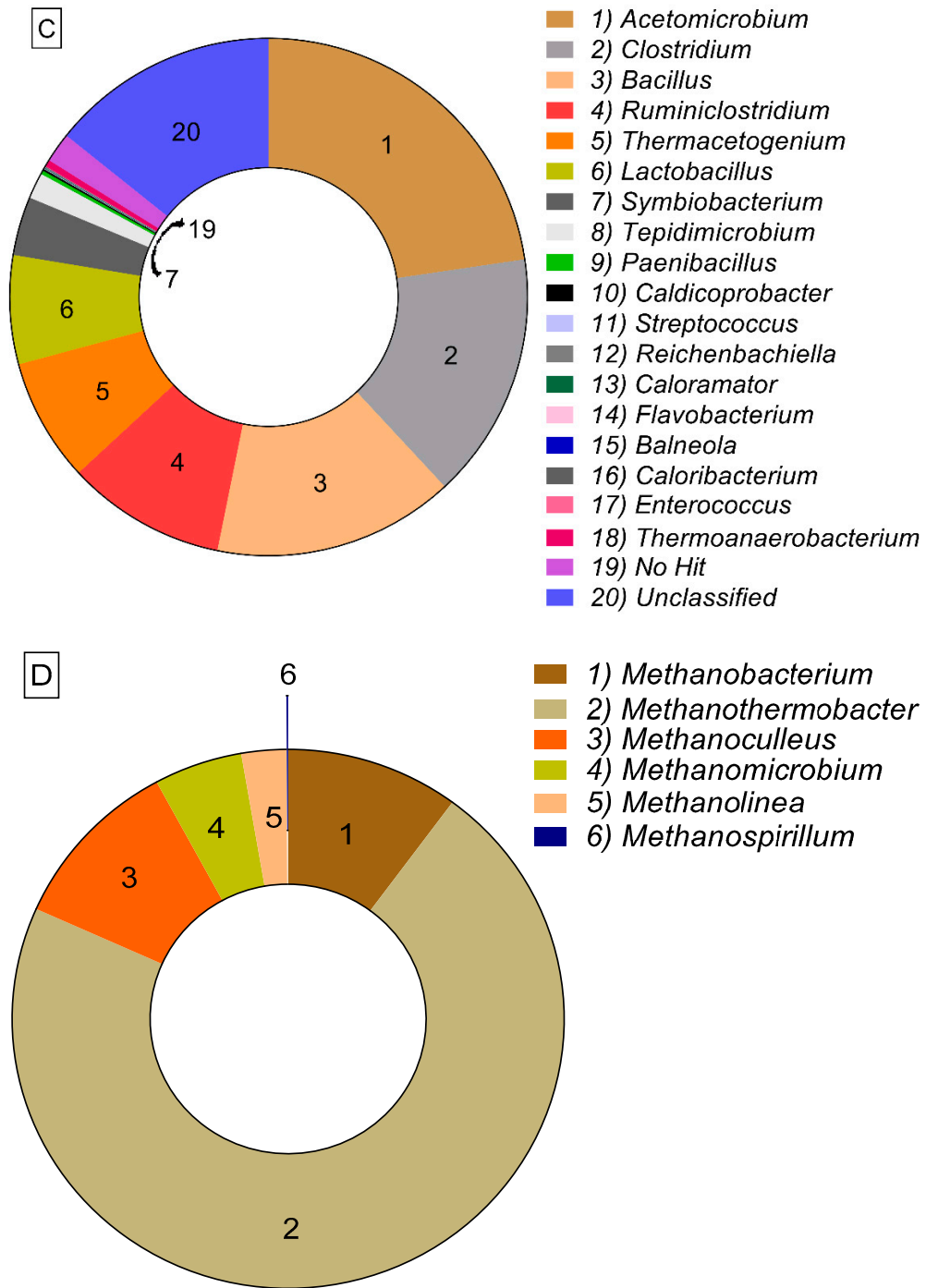


Figure S2. Relative abundance of microbial community at the order and genus levels; (A) bacteria genus; (B) archaea genus; (C) bacteria order; (D) archaea order

Table S1. Statistical analysis (2-way ANOVA) for mono-digestion of different substrates (1% concentration was taken as reference for all substrates).

Dunnett's multiple comparisons test	Mean Difference	95.00% Confidence Interval of difference	Significant?	Adjusted P Value
FW				
1 % vs. 2.5%	224.2	199 to 249.4	Yes	<0.0001
1 % vs. 5%	264.3	239.1 to 289.5	Yes	<0.0001
1 % vs. 10%	306.8	281.5 to 332	Yes	<0.0001
CS				
1 % vs. 2.5%	62.44	37.19 to 87.68	Yes	<0.0001
1 % vs. 5%	72.45	47.21 to 97.69	Yes	<0.0001
1 % vs. 10%	76.24	51 to 101.5	Yes	<0.0001
PCG				
1 % vs. 2.5%	37.98	12.73 to 63.22	Yes	0.0035
1 % vs. 5%	45.63	20.38 to 70.87	Yes	0.0007
1 % vs. 10%	46.58	21.33 to 71.82	Yes	0.0006
UBP				
1 % vs. 2.5%	39.62	14.38 to 64.86	Yes	0.0024
1 % vs. 5%	55.34	30.1 to 80.58	Yes	0.0001
1 % vs. 10%	72.74	47.5 to 97.98	Yes	<0.0001

Table S2. Statistical analysis (2-way ANOVA) for effect of codigestion of FW and LW on methane production.

Dunnett's multiple comparisons test	Mean Difference	95.00% Confidence Interval of difference	Significant?	Adjusted P Value
T1 vs. T2	-70.26	-85.41 to -55.11	Yes	<0.0001
T1 vs. T3	-98.68	-113.8 to -83.53	Yes	<0.0001
T1 vs. T4	-41.19	-56.35 to -26.04	Yes	<0.0001
T1 vs. T5	-93.44	-118.9 to -67.99	Yes	<0.0001
T1 vs. T6	-77.73	-103.2 to -52.28	Yes	<0.0001
T1 vs. T7	-58.95	-84.4 to -33.51	Yes	<0.0001

Table S3. Statistical analysis (2-way ANOVA) of effect of VS reduction on methane production during codigestion.

Sidak's multiple comparisons test	Mean Difference	95.00% Confidence of difference	Significant?	Adjusted P Value
T1	115.8	86.36 to 145.2	Yes	<0.0001
T2	194.5	165.1 to 223.9	Yes	<0.0001
T3	221.3	191.9 to 250.7	Yes	<0.0001
T4	130.1	100.7 to 159.5	Yes	<0.0001
T5	236.9	207.5 to 266.3	Yes	<0.0001
T6	192.5	163.1 to 221.9	Yes	<0.0001
T7	170.1	140.7 to 199.5	Yes	<0.0001

Table S4. Statistical analysis (2-way ANOVA) for effect of VFA concentration on methane during codigestion.

Sidak's multiple comparisons test	Mean Difference	95.00% Confidence Interval of difference	Significant?	Adjusted P Value
T1 vs. T2	2566	2152 to 2979	Yes	<0.0001
T1 vs. T3	2983	2569 to 3397	Yes	<0.0001
T1 vs. T4	596	182.1 to 1010	Yes	0.0042
T1 vs. T5	2873	2459 to 3287	Yes	<0.0001
T1 vs. T6	2536	2122 to 2949	Yes	<0.0001
T1 vs. T7	1566	1152 to 1979	Yes	<0.0001