

Supplementary Materials: The following supporting information can be downloaded at:

<https://susy.mdpi.com/user/manuscripts/displayFile/5647e07739e237456a84f3f679ead35e/supplementary>. Figure S1: qPCR results for bacteria and archaea across different OLRs. OTU stands for operational taxonomical unit and OLR for organic loading rate; Figure S2: Cumulative COD mass balances for the tests at (A) 1.75 g VS/L/d and (B) 2.25 g VS/L/d and (C) 2.75 g VS/L/d. Data for hydrogen, methane, and VFAs at the beginning (initial) and at the end (final) of the batch tests are provided. Results are shown for in-situ biomethanation, AD, ex-situ biomethanation, and endogenous tests. OLR stands for organic loading rate, COD for chemical oxygen demand, AD for anaerobic digestion and VFA for volatile fatty acid; Figure S3: Relative abundance of bacterial species at genus level

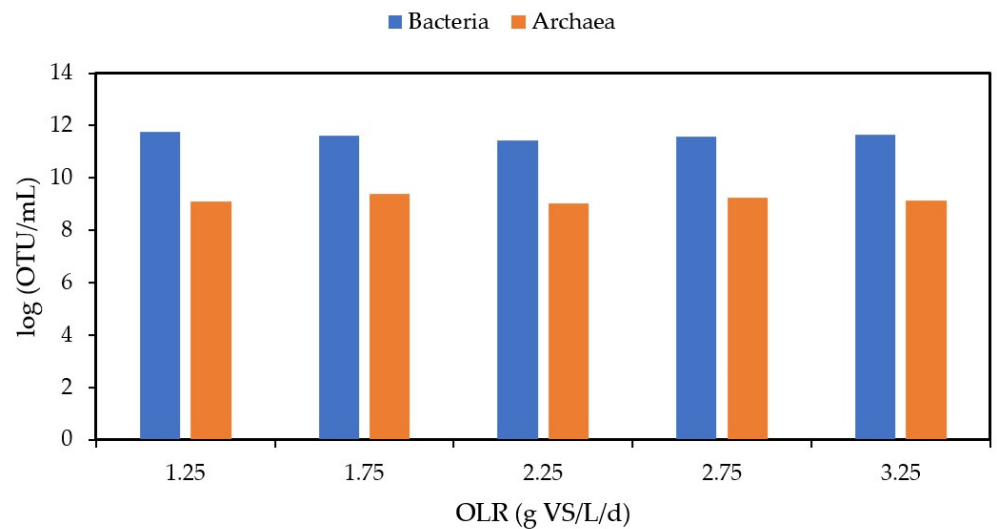
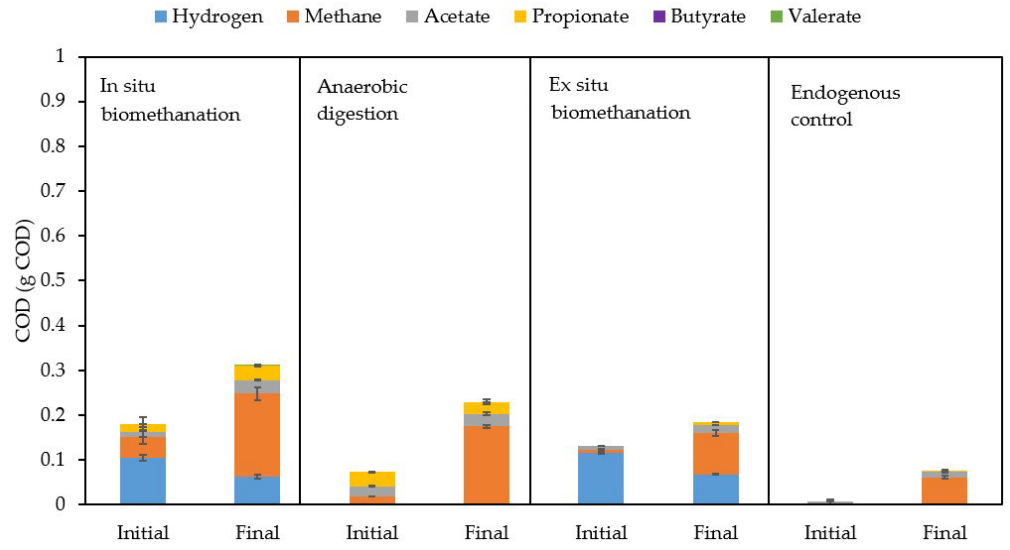


Figure S1. qPCR results for bacteria and archaea across different OLRs. OTU stands for operational taxonomical unit and OLR for organic loading rate.

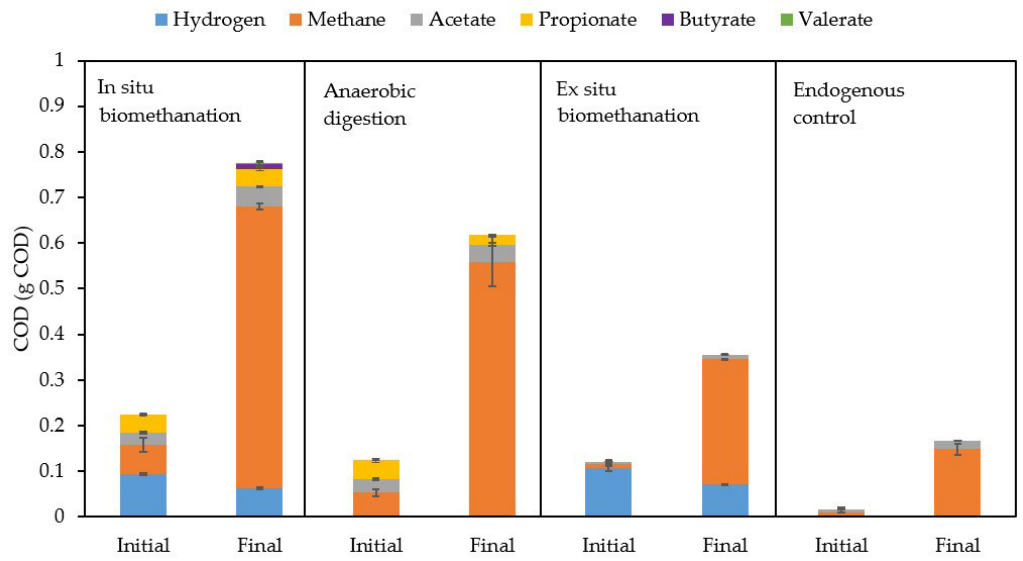
A

OLR 1.75 g VS/L/d



B

OLR 2.25 g VS/L/d



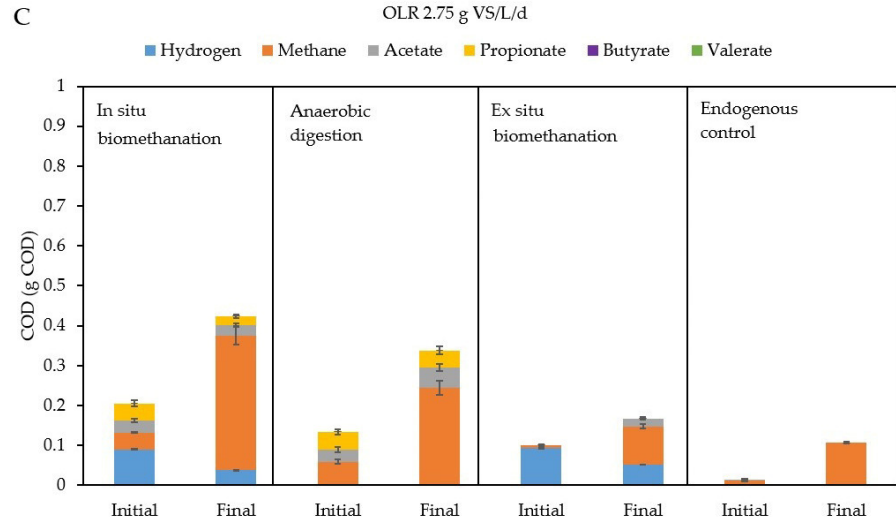


Figure S2. Cumulative COD mass balances for the tests at (A) 1.75 g VS/L/d and (B) 2.25 g VS/L/d and (C) 2.75 g VS/L/d. Data for hydrogen, methane, and VFAs at the beginning (initial) and at the end (final) of the batch tests are provided. Results are shown for in-situ biomethanation, AD, ex-situ biomethanation, and endogenous tests. OLR stands for organic loading rate, COD for chemical oxygen demand, AD for anaerobic digestion and VFA for volatile fatty acid.

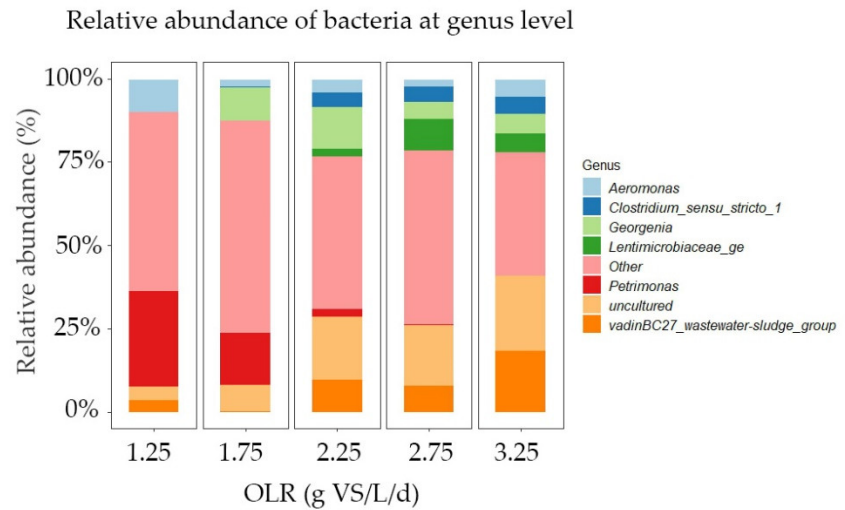


Figure S3. Relative abundance of bacterial species at genus level