



Comment on “A compilation and bioenergetic evaluation of syntrophic microbial growth yields in anaerobic digestion” by Patón, M. and Rodríguez, J. [Water Research 162 (2019), 516–517]

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1 **Comment on “A compilation and bioenergetic evaluation of syntrophic microbial**
2 **growth yields in anaerobic digestion” by Patón, M. and Rodríguez, J. [Water Research**
3 **162 (2019), 516–517]**

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27 **Abstract**

28 Recent efforts have focused on providing a systematic analysis of syntrophic microbial
29 growth yields. These biokinetic parameters are key to developing an accurate mathematical
30 description of the anaerobic digestion process. The agreement between experimentally
31 determined growth yields and those obtained from bioenergetic estimations is therefore of
32 great interest. Considering five important syntrophic groups, including acetoclastic and
33 hydrogenotrophic methanogens, as well as propionate, butyrate and lactate oxidizers, previous
34 findings suggest that measured and estimated growth yields were consistent only for
35 acetoclastic methanogens. A re-analysis revealed that data are also consistent for lactate
36 oxidizers and hydrogenotrophic methanogens, whereas the limited data available for
37 propionate and butyrate oxidizers is unsupportive of firm conclusions. These results highlight
38 pertinent challenges in the analysis of microbial syntrophy and encourage more accurate
39 measurements of syntrophic microbial growth yields in the future.

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43 **Keywords**

44 Microbial growth yield; Bioenergetics; Syntrophy; Anaerobic digestion; Individual biomass
45 quantification

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