Supplement of

Fractionation of stable carbon isotopes during microbial propionate consumption in anoxic rice paddy soils

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Fig. S1: Propionate conversion to acetate, butyrate, CH$_4$ and CO$_2$ in suspensions of paddy soil from the International Rice Research Institute (IRRI, The Philippines) after addition of propionate without sulfate (blue squares) or propionate plus sulfate (gypsum) (red triangles) without CH$_3$F (open symbols) or with CH$_3$F (closed symbols). Controls with addition of only water (blue or red circles) are only shown occasionally. The panels show the temporal change of (a) concentrations of propionate, (b) concentrations of acetate and butyrate (blue diamonds), (c) mixing ratios of CH$_4$ (1 ppmv = 10$^{-6}$ bar), (d) mixing ratios of CO$_2$, (e) $\delta^{13}$C of propionate, (f) $\delta^{13}$C of acetate and butyrate, (g) $\delta^{13}$C of CH$_4$, and (h) $\delta^{13}$C of CO$_2$. Means ± SE.

Fig. S2: Balance of (a, c) produced CH$_4$ and (b, d) produced acetate against the consumed propionate under (a, b) methanogenic and (c, d) sulfidogenic conditions in paddy soil from the IRRI (The Philippines). The open and closed symbols denote conditions in the absence and the presence of CH$_3$F, respectively. The black and red lines in panel (a) indicate aceticlastic methanogenesis by *Smithella* and *Syntrophobacter*, respectively. The black and red lines in panel (b and d) indicate transient acetate production by *Smithella* and *Syntrophobacter*, respectively. The different symbols indicate three different replicates.

Fig. S3: Temporal change of the fraction of hydrogenotrophic methanogenesis ($f_{H2}$) in paddy soil from (a) Vercelli and (b) the IRRI. Data points are means ± SD of n = 3. Values of $f_{H2}$ were computed using equation (3) and different values of $\varepsilon_{ac\text{-}methyl,CH4}$. Data points are means ± SD of n = 3. The data points of $f_{H2}$ in panels (a) and (b) were averaged over time for each $\varepsilon_{ac\text{-}methyl,CH4}$ and then averaged for each replicate (n = 3). The means ± SD are presented in panel (c).
Fig. S1
without sulfate

with sulfate

Fig. S2
Fig. S3

(a) Vercelli

(b) IRRI

(c) Comparison between Vercelli and IRRI