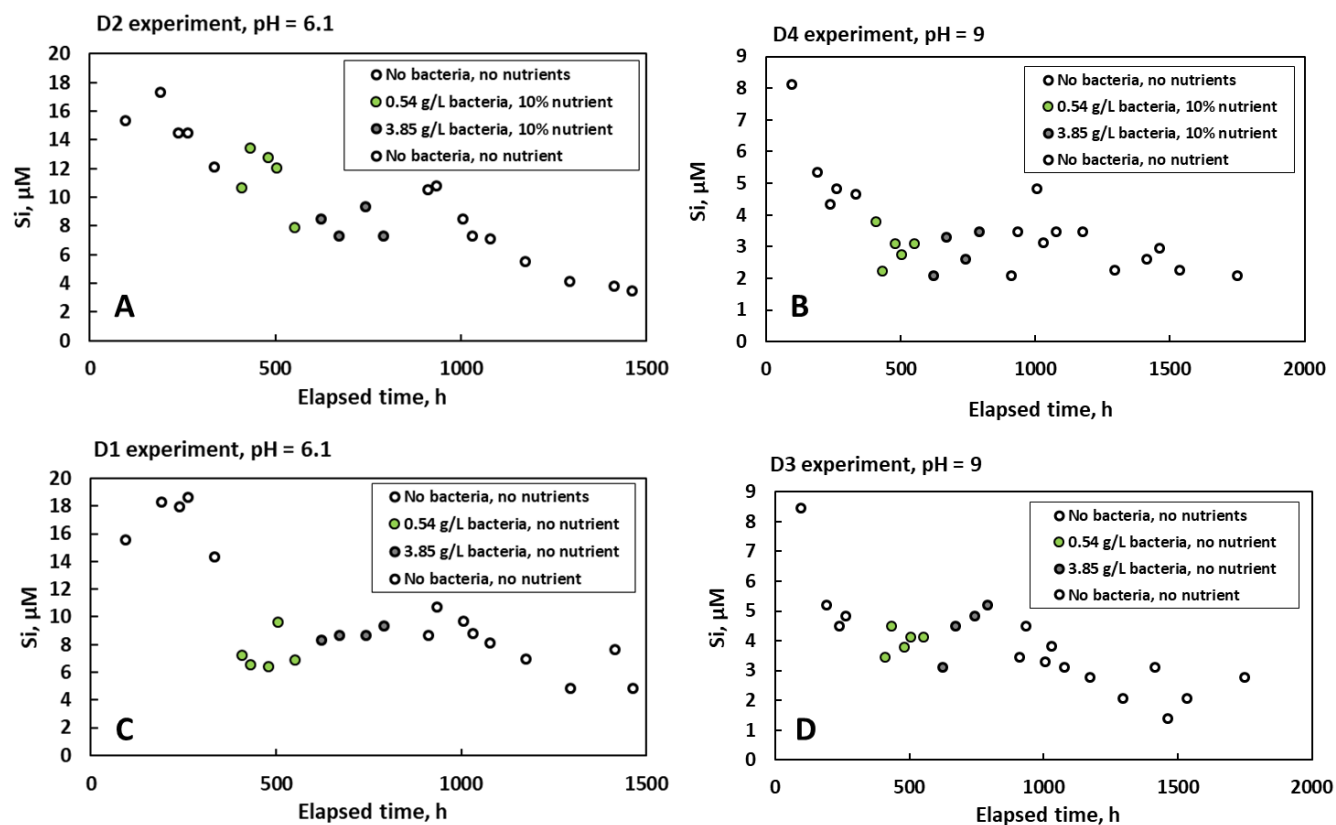
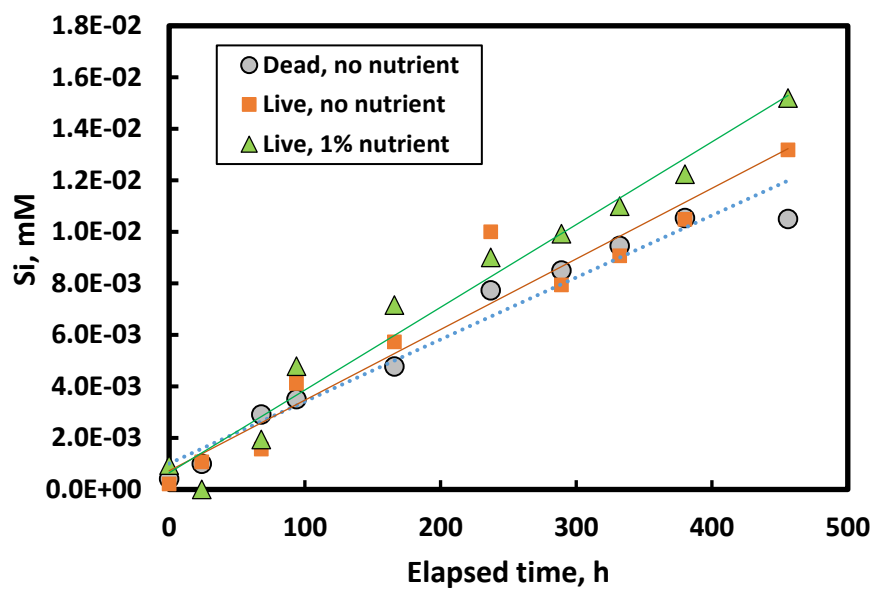




**Supplementary Figure 1.** Outlet Si concentration ( $\mu\text{mol L}^{-1}$ ) in the mixed-flow reactor at pH 6 (A) and 9 (B) in the sequence of nutrient-inlet solutions “bacteria-free 0.1 M NaCl  $\rightarrow$  0.54  $\text{g}_{\text{wet}}/\text{L}$  bacteria, nutrient  $\rightarrow$  3.85  $\text{g}_{\text{wet}}/\text{L}$  bacteria, nutrient  $\rightarrow$  bacteria-free 0.1 M NaCl”. C and D: Outlet Si concentration in the mixed-flow reactor at pH 6 (C) and 9 (D) in the sequence of nutrient-free inlet solutions “bacteria-free 0.1 M NaCl  $\rightarrow$  0.54  $\text{g}_{\text{wet}}/\text{L}$  bacteria, 0.1 M NaCl  $\rightarrow$  3.85  $\text{g}_{\text{wet}}/\text{L}$  bacteria, 0.1 M NaCl  $\rightarrow$  bacteria-free 0.1 M NaCl”.



**Supplementary Figure 2.** Example of Si concentration ( $\text{mmol L}^{-1}$ ) evolution in batch reactor with dead, live without nutrient and live with 1% nutrients fungus (4.5, 4.2 and 5.6  $\text{g}_{\text{wet}}/\text{L}$ , respectively).