

Supporting Information

The effect of reduced sulfur speciation on the chemoautotrophic pyrite oxidation with nitrate

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Figure S1. Scanning electron microscopy image of ground pyrite.

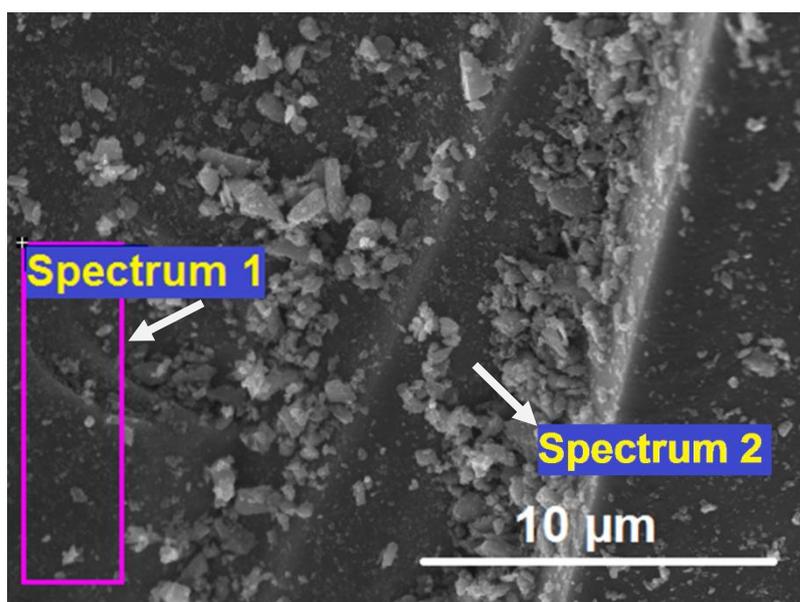


Table S1. Elemental analysis by EDX of a fraction of the pyrite surface (spectrum 1) with only few nano-particles.

Element	Mass %	Atom %
C	4	11
S	51	58
Fe	46	30
total	100	

Table S2. Elemental analysis by EDX of a fraction of the pyrite surface (spectrum 2) covered with a high density of nano-particles.

Element	Mass %	Atom %
C	3	11
S	50	59
Fe	46	31
total	100	

Figure S2. Product concentration (nitrite (●), nitrate (▼), sulfate (■)) from the reaction between ground pyrite (50 mM) and nitrate (approximately 10 mM) in the presence of *Thiobacillus denitrificans* at a cell concentration of 2×10^4 cells ml^{-1} under anoxic, pH-neutral conditions. Error bars are standard deviations calculated from three independent replicates. The nitrite symbols are hidden behind the sulfate ones.

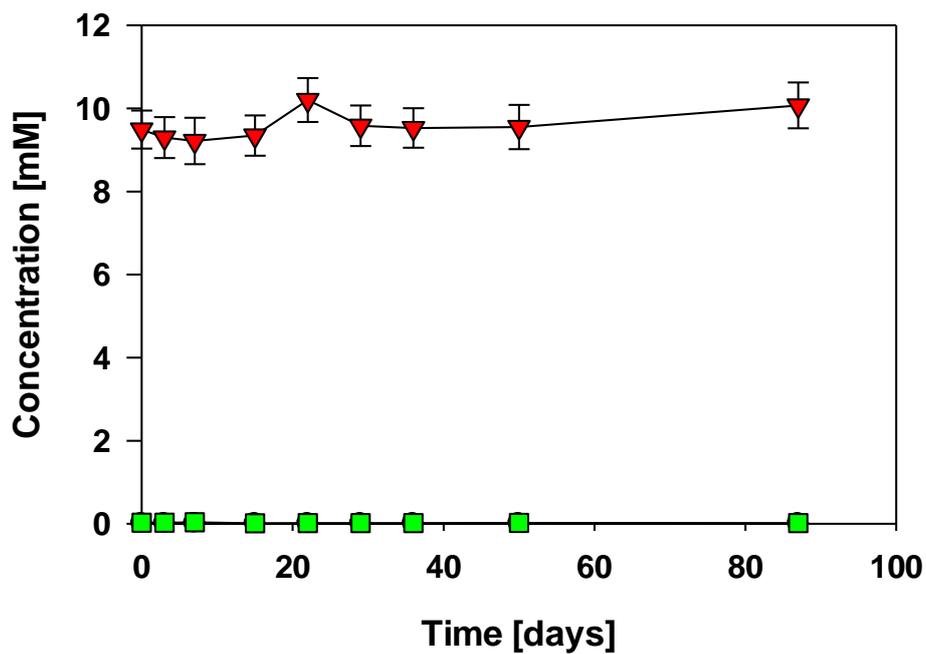


Figure S3. Product concentration (nitrite (●), nitrate (▼), sulfate (■)) from the control experiment of (A) ground pyrite (50 mM) and nitrate (approximately 10 mM) in the absence of *Thiobacillus denitrificans*, (B) ground pyrite (50 mM) and *Thiobacillus denitrificans* at a cell concentration of 2×10^4 cells ml^{-1} in the absence of nitrate, (C) nitrate (approximately 10 mM) and *Thiobacillus denitrificans* at a cell concentration of 2×10^4 cells ml^{-1} in the absence of pyrite, (D) elemental sulfur (50 mM) and nitrate (approximately 10 mM) in the presence of *Thiobacillus denitrificans* at a cell concentration of 2×10^4 cells ml^{-1} under anoxic, pH-neutral conditions. Concentrations were calculated as the mean values of two independent replicates. The nitrite symbols are hidden behind the sulfate ones (A-D).

