

Figure S1. Comparison of NO_3^- $\delta^{15}\text{N}$ and $\delta^{18}\text{O}$ measurements following NO_3^- removal with sulfamic acid or with ascorbate. (a) NO_3^- $\delta^{15}\text{N}$ vs. $[\text{NO}_3^-]$ (log scale) in enzymatic NO_3^- reduction assays by *P. denitrificans* cell homogenates. Assays were fuelled by menthyl viologen, at 1 mmol L^{-1} vs. 200 $\mu\text{mol L}^{-1}$ initial $[\text{NO}_3^-]$. (b) NO_3^- $\delta^{18}\text{O}$ plotted against the corresponding $\delta^{15}\text{N}$. A line with a slope of 1 is shown for reference.

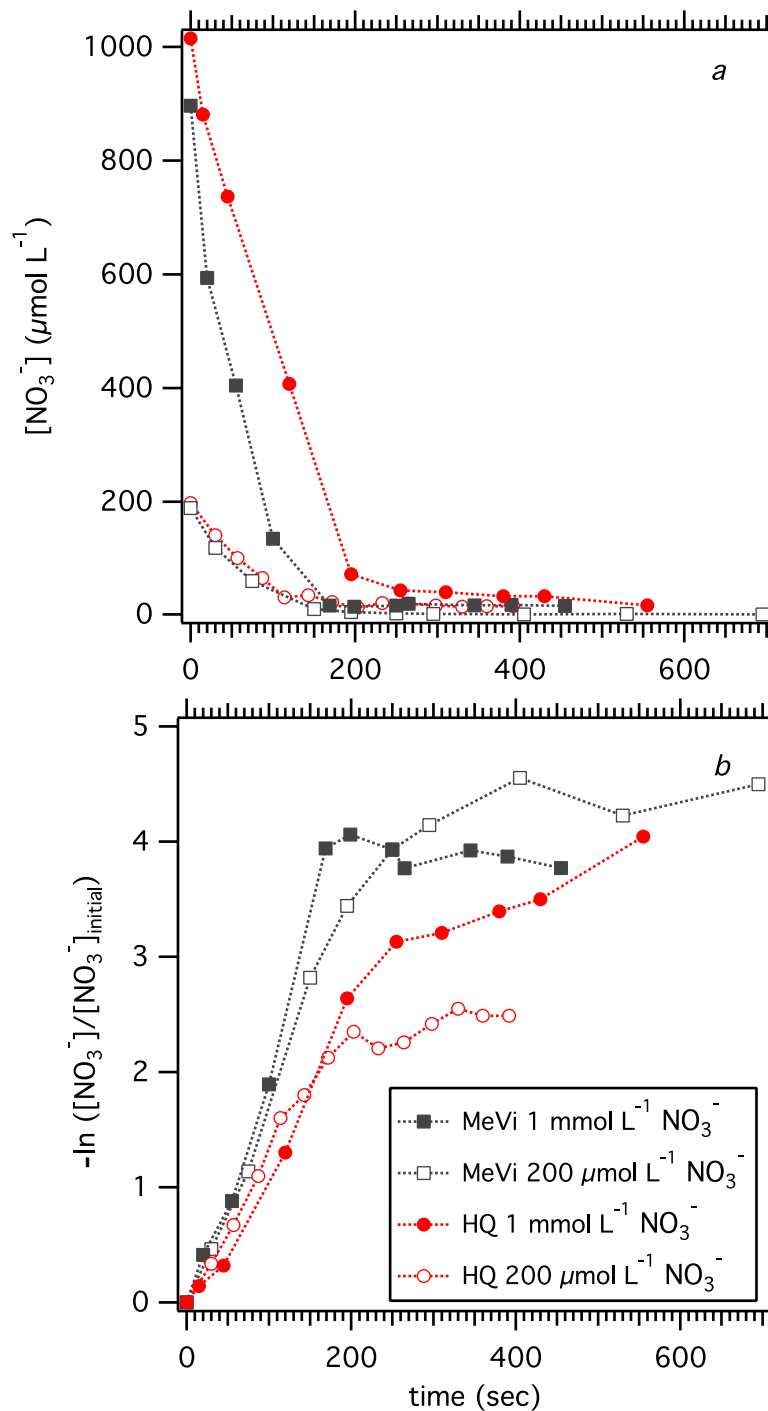


Figure S2. (a) NO_3^- consumption vs. time for representative NO_3^- reductase assays with equivalent enzyme concentrations, fuelled with viologen vs. hydroquinone, at two initial $[\text{NO}_3^-]$. (b) Negative log of fractional NO_3^- consumption ($-\ln([\text{NO}_3^-]/[\text{NO}_3^-]_{\text{initial}})$) vs. time. Initial slopes approximate specific reaction rates at corresponding assay conditions.

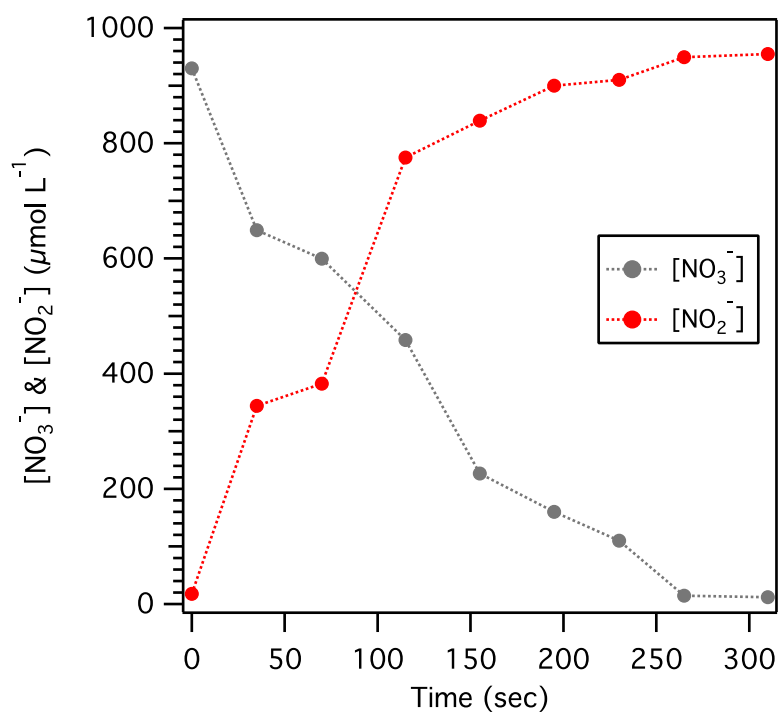


Figure S3. NO_3^- consumption vs. time for a representative NO_3^- reductase assay, and concurrent accumulation of NO_2^- .