Supplementary Content Description & Figures

Modeling the impact of soil aggregate size on selenium immobilization

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Content list

Figure S1 – Reduction inhibition models fitted to the data collected by Losi and Frankenberger (1997b)

Figure S2 – Bromide breakthrough curves for an oxic and an anoxic experiment

Movie S1 – Dynamics of pyruvate concentrations [mM]*

Movie S2 – Dynamics of oxygen concentrations [mM]*

Movie S3 – Dynamics of selenate concentrations [mM]*

Movie S4 – Dynamics of selenite concentrations [mM]*

Movie S5 – Dynamics of elemental selenium concentrations [mM]*

Movie S6 – Dynamics of selenate reduction [mM/s]*

Movie S7 – Dynamics of selenite reduction [mM/s]*

*Note: in all movies time is in s and dimensions in m. Input concentrations of selenate and pyruvate in this scenario were set to 0.4 and 0.3 mM, respectively.

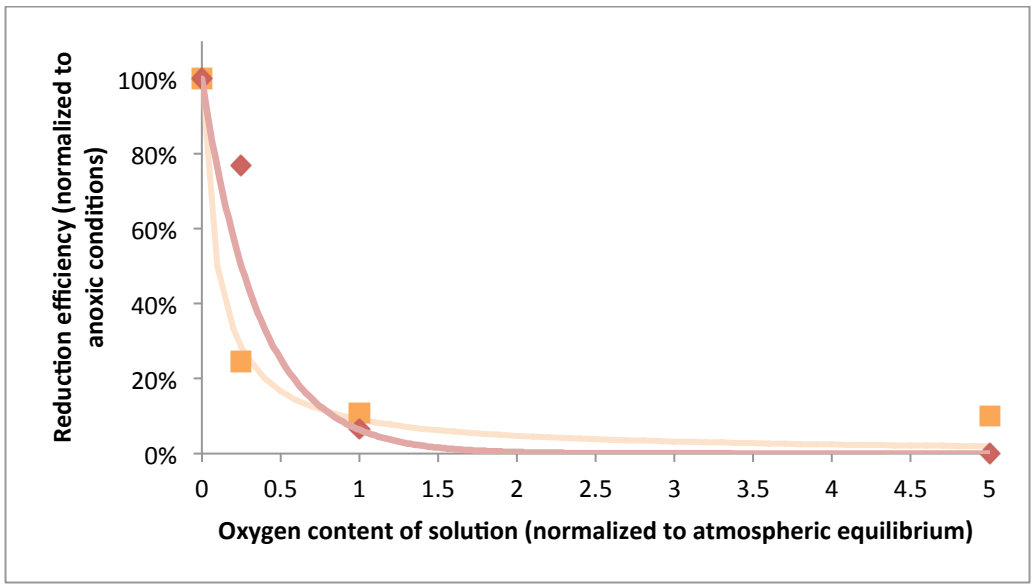

Figure S1. Selenate (red) and selenite (orange) inhibition models (solid lines) fitted to the data collected by Losi and Frankenberger (1997b) for *E. cloacae* reducing selenate (diamonds) and selenite (squares) at various oxygen concentrations. The inhibition of selenate reduction was fitted with a reverse Monod type inhibition term (Van Cappellen and Gaillard, 1996) and that of selenite reduction with an exponential function (see Eqs. A12 & A13 in the Appendix of the main manuscript). The R^2 of these fits are 0.985 and 0.999 for the inhibition of selenate and selenite reduction respectively.

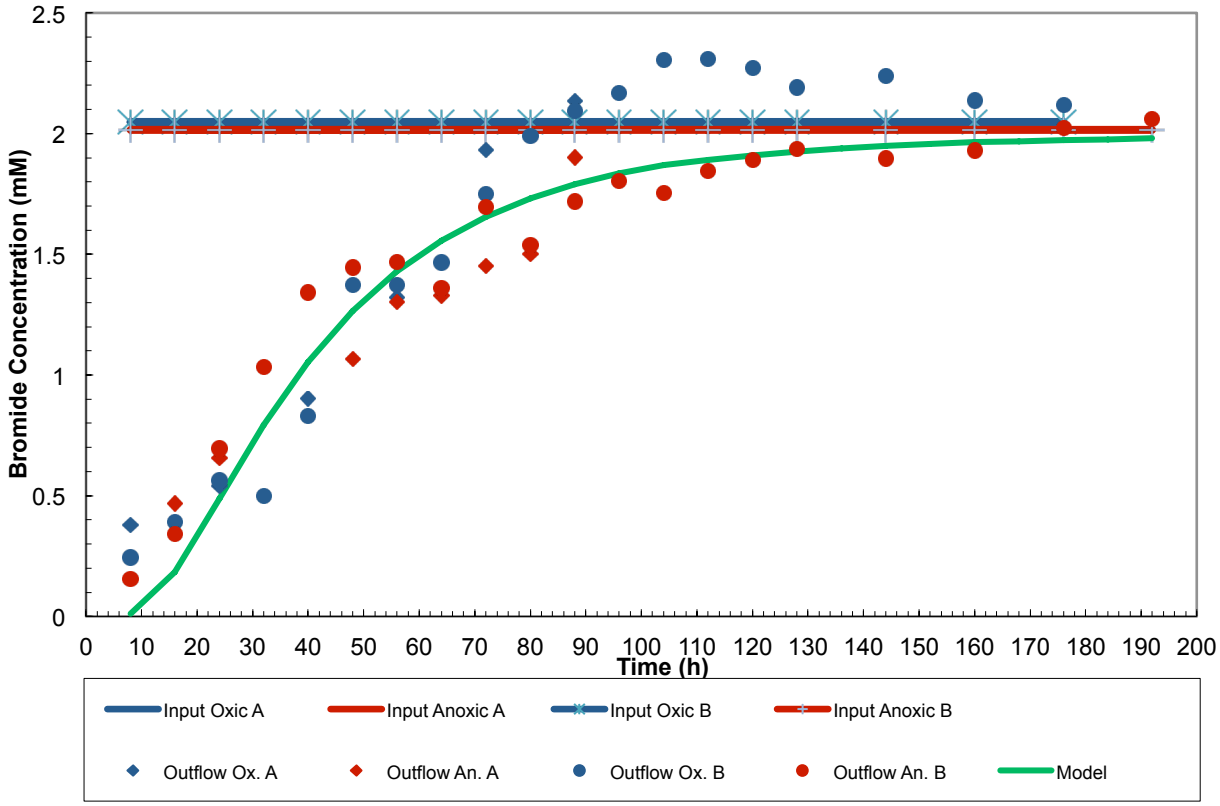

Figure S2. Breakthrough curves (points) and input solution concentrations (solid lines) of the flow tracer bromide measured from the two oxic (blue) and two anoxic (red) reactor with 0.3 mM pyruvate input concentrations. The two reactors labeled A and B here correspond to those with input selenate concentrations of 0.4 mM and 0.8 mM respectively. The green line corresponds to the breakthrough curve simulated by the transport model.