

Comparison of the effect of microbe on ferrihydrite formation between nature and in situ experiment

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The reaction rates of ferrihydrite formation were measured in both nature and laboratory in order to examine the effect of microbes on ferrihydrite formation. The solution was slightly supersaturated with respect to ferrihydrite. The precipitation rate of Fe, 42 mg/month/1g of ferrihydrite, in the field was estimated by measuring Fe concentrations in solution before and after cutting an icicle-like ferrihydrite precipitate. The precipitation rate of Fe was also measured in situ experiment with and without the microbes using the solution from the studied area, which revealed that the microbes precipitated Fe at a rate of 15 mg/month/1g of ferrihydrite. Our estimation indicated that the microbes increase the precipitation rate of Fe by 40-60 percent.