

Interactive comment on “Taking nature into lab: biomineralization by heavy metal resistant streptomycetes in soil” by E. Schütze et al.

E. Schütze et al.

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Dear Editor, We have amended the paper according to reviewer #2 comments. Please find a detailed answer to the criticism below: General Comment The manuscript BGD “taking nature into lab...” by Schütze et al is an interesting paper providing new and original data on the capability of streptomycetes to drive biomineralization processes in soils. This manuscript is of interest for readers of Biogeosciences. I recommend publication after minor revisions according to the following. Besides the clearly written description of the experiments and the results, Authors find that microbial urease changes depending on both substrate and strain. Authors should provide error estimation in pH shift values shown in Table 6. The value of -0.01 cited in table 6 seems rather to be a typos. As per suggestion of reviewer # 1 we have removed this table.

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Indeed, the investigation had been performed in triplicate and the standard deviation is negligible. The main findings are now provided with the text.

I suggest that the ammonification experiments should be better described in their rationale. Microbial urease of P9A-1 has an extremely different pH shift depending on the medium. Those pH change could be extremely effective in solubilization/precipitation process of biominerals. If any direct dependence of biomineralization processes and biomineral crystal shape on streptomycetes microbial urease appear, this should be stressed through all the paper starting from the abstract. It seems that streptomycetes can be found under many different soil conditions, and the predominance of a given genus under given soil condition will result in biomineralization or not. In addition to changing the paragraph as per suggestions before, we now also rephrase the ammonification part (see page 10/11 of this document).

Specific comments: Page 2 line 8 and 10: please provides the formula of your minerals
Changes as suggested

Page 2 first sentence of Introduction: the causality of mineralization and life activity was originally introduced in the modern science by Lowenstam on 1981, should the authors cite at least one of the references: Included as suggested

Page 3 line 9, please refer to some literature work, for the instance: Included as suggested

Page 3 line 18: solubility of struvite cannot be considered “low” but should be rather referred to as “slight”, in fact struvite is entirely soluble in citrate. Changes as suggested, we added “in water” to make this distinction clear.

Page 6 line 24: typos error contaminate. corrected

Please also note the supplement to this comment:

<http://www.biogeosciences-discuss.net/10/C1027/2013/bgd-10-C1027-2013->

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supplement.zip

Interactive comment on Biogeosciences Discuss., 10, 2345, 2013.

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