

Interactive comment on “Iron and aluminum association with microbially processed organic matter via meso-density aggregate formation across soils: organo-metallic glue hypothesis” by Rota Wagai et al.

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Thank you for the through review and careful comments.

The expression of "microbially-processed OM" based solely on C:N ratio was also questioned by Referee#1. As I posted the reply comment to Ref#1, we are debating if we should remove "microbially-processed" or not. Please take a look at our response if possible. In brief, our separate study (in prep.) showed N-15 enrichment in meso-density OM relative to bulk and low-density fractions.

SEM images: We were also initially surprised by the well-aggregated appearance of all these fractions. But the aggregate nature observed by SEM is fairly consistent with the results of other experiments (unpublished) that show that most materials in the meso-density fractions are dispersible only after much stronger energy (by sonication). That was done right after the density fractionation without drying fractionated samples. So we don't think the aggregated nature is an artefact. Clay coatings are the plate-like features you see on most of these aggregates. We will try preparing higher-resolution images for the revision.

We should be able to address other points as well. We will prepare an official response letter. Also thank you for pointing out the typo and unclear parts.

Rota Wagai

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Discussion paper

