

## ***Interactive comment on “Fate of rice shoot and root residues, rhizodeposits, and microbe-assimilated carbon in paddy soil: I. Decomposition and priming effect” by Zhenke Zhu et al.***

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This manuscript aimed to show how different C supplied from rice plant and soil microbes promoted C mineralization and interaction with native C in incubated experiment, which would be useful information to assess soil C sequestration and greenhouse gas mitigation in paddy soil, because the knowledge of C dynamics in water-logged paddy soil is still limited to compare with aerobic upland soil (unlike L93). However one critical point of methodology is the way of preparing microbe-assimilated  $^{13}\text{C}$  in soil without rice plant (L146); it is well-known that microbial activity is higher with rice

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plant than without plant, in general, so that the results of microbe-assimilated  $^{13}\text{C}$  in this investigation might be underestimated. Also rhizodeposits (L144) were obtained by gentle sharking moist soil, which is common method for aerobic soil, but doubt for wet paddy soil, resulting again underestimate the contribution in  $^{13}\text{C}$  dynamics.

Other minor points are as below to improve the manuscript.

L31; Effective digits are not uniformed as 1.89 vs 1.9 and 1.8. Also L327.

L83; Yuan et al. 2014c, but only one Yuan et al. for 2014 in the list. Also L294.

L112; pH of 5.6 and a soil: water .. should be pH of 5.6 at a soil: water .....

L137; how about humidity? It is important to regulate photosynthesis/respiration.

L163; if the same bottle for the almost the same soil/water contents, water level should be not as in such wider range < 1-2 cm.

L167; how to adjust gas pressure during incubation especially with plant added?

L195 C sample; unit is not clear.

L242; linearly should be exponentially?

L249; Fig S1, missing or not available.

L277; different that .. should be different from ..

L291 slower-growing fungi; Is this applicable/useful reference to paddy soil?

L318; remove ; after Cheng et al, 2014

Table 1; Why zero for Total  $^{13}\text{C}$  of Bulk soil? Negligible  $^{13}\text{C}$  natural abundance?

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