

## ***Interactive comment on “Stable soil organic carbon is positively linked to microbial-derived compounds in four plantations of subtropical China” by H. Wang et al.***

**Anonymous Referee #2**

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This paper estimates the C composition of litter and fine roots of 3 broadleaf and 1 coniferous forests by  $^{13}\text{C}$  CPMAS NMR and analyzes soil microbial community structure in the surface soils from those forests using PLFA analysis. The results are discussed including previous results of the surface soil C composition. Experiments are simple. One of the conclusions, “the composition of organic constituents in litter and plant roots does not affect the composition and stability of SOC in the A-horizon soil”, is interesting and important. A technical problem is the use of constant CP in NMR analysis that probably underestimates %carbonyl C and/or %aryl C, although alternative method called ramp CP is also not complete. The presence of SSBs is another problem. These faults are more serious in the analysis of SOC. The authors do not

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exhibit any spectra they obtained and do not explain how treated SSBs during C composition estimation process, which are essential for trusting the data in Table 1 even if the conclusion would not change. High alkyl C/O-alkyl C ratio of SOC can be achieved by preferential decomposition of O-alkyl C among plant derived C or by addition of microbial alkyl C after both alkyl C and O-alkyl C derived from plants. Microbial C may contribute to stable SOC pool, but the size of contribution is unknown. This paper does not give any data indicating the considerable contribution from microbial C to alkyl C in the soils analyzed. PLFA suggestion is too weak to your second conclusion. Minor point: The proportion of alkyl C in total C is not ‘alkyl C content’.

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