Comment on acp-2021-897
Anonymous Referee #1

Referee comment on "Stable carbon isotopic composition of biomass burning emissions – implications for estimating the contribution of C3 and C4 plants" by Roland Vernooij et al., Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2021-897-RC1, 2021

General comments:

This is an interesting piece of lab and field study documenting the emission of stable carbon isotope composition of biomass burning emissions from African savanna plant species. It is known that the composition of stable carbon isotopes differs markedly between C3 and C4 plants and consequently their combustion products will have different stable isotope ratios. This information can be useful for distinguishing the sources or characteristics of biomass burning events that contribute to atmospheric pollution episodes.

I have no major comments though I ask the authors to check the manuscript thoroughly for typos and consistency.

Specific comments:

Throughout manuscript: Use either Fig. or Figure for consistency.

P9L26: “weighted average (WA)” should be given here. The abbreviation is given twice later in the manuscript.

P11L7: Spell out RMSE here.

P11L26-L27: It is not clear to me what these sentences mean to say. Do you mean “As a consequence, δ^{13}C signatures of CH₄ and OC emitted by the combustion of C3 and C4 plants are much closer than the difference in the signatures of the fuel.”?

P12L2: Fig. 2f should be Fig. 3f.

P12L12: Fig. 4b and the legend do not have the hatched red bars. NMHC is in red.

P12L17-18: What is depleted? Please complete the sentence.

P12L27-28: Define EDS and LDS here.
P14L23: “savna” should be “savanna”.

P15L1: “BB burning” should “BB”.

P16L13: This is not clear from Fig. 5 to me. Better explanation of the figure is necessary here.

Literature: Please check the formatting of the references thoroughly.

Table 3: Where does -30.82 in row “Woodland Savanna/LDS/δ^{13}C” and column “Shrubs” come from? There is no number in %C_{fuel} in the table. This needs to be explained in the main manuscript.