Answers to Editor #2

First of all, the authors would like to thank the editor for the suggestions and changes have been performed accordingly. Please find below the answers to the comments:

Comment: Please improve the english of the discussion of the Wu et al. paper to avoid any misunderstandings.

Newest modifications are shown in red in the following text.

"**Finally, Wu et al., 2021 studied the impact of photolysis on NO_3-generated SOA for β-caryophyllene. They measured a final SOA yield (110%) and provided particle-phase composition analysis, showing a major impact of organic nitrates. Nevertheless, neither Y_{SOA} vs. M_0 graph nor SOA model parameters were provided. In addition, β-caryophyllene concentrations could not be measured by the quadrupole-PTR-MS, due to its m/z ratio outside mass transmission range.**" (L. 69-74)

"**Finally, Wu et al., 2021 studied the photolytically induced ageing of NO_3-initated SOA. In order to fulfil this aim, they first have generated SOA by reacting β-caryophyllene and NO_3. One experiments was conducted with 50 ppb of precursor, and a final SOA yield of 110 % is calculated. Two issues are pointed out: firstly, they could not monitor β-caryophyllene with a quadrupole-PTR-MS, because its m/z ratio was out of the range for quantitative measurement. The method used to calculate its concentration is then not explained, but it is probably associated with a larger uncertainty. Secondly, a concentration of more than 200 ppb of N_2O_5 is injected during approx. 10s. As explained before, it can lead to a SOA yield overestimation, and thus explain the observed differences. Nevertheless, the mean diameter of size distribution measured in this study is between 229 and 266 nm, which is in good agreement with the ones measured here (between 225 and 246 nm in the end of the oxidation). This study showed no evaporation of SOA during a dark ageing, which agrees with the fact that SOA concentrations are stable here, after the oxidation.**" (L. 409-421). The last sentence has been deleted.

"**The study of Wu et al., 2021 carried out an identification of SOA composition. Particle-phase molecular composition was identified using both FIGAERO-CIMS and EESI-TOF techniques. A large majority of organic nitrates were detected. C15 monomers are major products, as shown also in our study. C30 dimers have also been detected, but they are heavy products and out of the PTR-ToF-MS mass-to-charge ratio range used in our study. In addition, the amount of dimers detected in particle phase can be explained by the reaction of hydroxynitrates with carbonyl compounds, via an acid-catalyzed particle-phase reaction leading to the formation of acetal dimers and trimers, as shown in Claflin and Ziemann, 2018.**
This study is in good agreement with the determination of organic nitrates in particle phase: a large amount of organic nitrates was detected, which confirm their prominence in β-caryophyllene + NO_3 SOA formation. Most of the products were too heavy to be detected in our study, but two major ones are $C_{15}H_{24}O_2$ (MW=236 g/mol) and $C_{15}H_{25}NO_5$ (MW=298 g/mol). They have been identified here as opening ring products. It confirms the importance of these two products in β-caryophyllene + NO_3 chemistry." (L. 634-645)