

## ***Interactive comment on “Impact of heat stress on the emissions of monoterpenes, sesquiterpenes, phenolic BVOC and green leaf volatiles from several tree species” by E. Kleist et al.***

**Anonymous Referee #2**

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The authors studied the effects of heat stress treatments on foliar VOC emissions from European beech, Palestine oak, Scots pine, and Norway spruce. The work described in the study provides useful data towards a better understanding of abiotic stress impacts on plant VOC emissions. The paper is overall well written although clarifications and corrections are needed in all sections. After revision, it should be acceptable for publication. I want to stress that  $^{13}\text{CO}_2$  labeling technique is a very nice technique which permit to distinct between BVOCs synthesized and stored. But there are many other concerns about this experiment: -As can be seen from table 1 only one plant of Palestine oak and one plant of Norway spruce were used. -The stress application on the plants has not any logic (at least I can not find one). In almost everyone have been

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used different ranges of temperature and different application times. - It were used many different GC –MS systems (even that they are similar). As the emissions are at the level of picomol  $\text{m}^{-2} \text{s}^{-1}$  this procedure should not be used. - I can not understand the linking with insect interactions -To keep the plants at 45 deg for 48 h continuously is not likely to happen. Even 51 deg for 4 h is unlikely - Something is not right with the plants: even in no stress conditions assimilation and transpiration rates are very low. - The importance of this data in interpretation of future climate change and the expected increase of VOC emissions with temperature is quite difficult to be assed by this MS. Is not clear what will happen with this emission when temperature will increased. - The MS would benefit by a editing by native English speaker as some phrases are not clear (eg. page 9547 (line 13-14), page 9555 (line 1-5) et al.)

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