We sincerely thank Dr. Praplan for the careful review and encouraging comments. Our detailed responses are provided below, with the *reviewer's comments* and our replies distinguished by formatting. The line numbers referenced in our responses correspond to those in the revised manuscript.

Comment1:- lines 211-212: 'After trimming its base, we cut the branch under water to maintain it vascular integrity.' Could the author explain a little bit more how the branch was cut under water and possibly provide a reference demonstrating how vascular integrity is maintained by doing so?

Response1: We agree that our explanation regarding the procedure of cutting branches under water was insufficient. We have added following sentences in the main manuscript.

L232: After trimming the base, the branch was re-cut under water to maintain its vascular integrity, and the cut end was kept submerged throughout the experiment. This underwater cutting technique is a standard method to prevent air from the xylem vessels, which can cause cavitation and disrupt water transport (Ogasa et al., 2016; Umebayashi et al., 2016). Indeed, measurements on detached branches represent a well-established approach in BVOC research (e.g., Jardine et al., 2020), including for coniferous species with large storage pools similar to C. japonica (Mochizuki et al., 2011; Miyama et al., 2018). Furthermore, Monson et al. (2007) demonstrated that this method maintains stable rates of photosynthesis, stomatal conductance, and isoprene emission for detached branches, showing no significant differences from branches that remained attached to the tree. As *C. japonica* emits stored rather than de novo synthesized BVOCs, and the distance from the cut site to the enclosed section of the branch was sufficiently long (60 cm), the effect of cutting on our measurements is considered negligible.

Comment2: - lines 226-227: 'at least one terpene was detected in each category'. Why did the author decided not to included all the detected terpenes (one in each category) in Fig. 2? There seems to be only MTs and one DT.

Response2: Thank you for this comment, which has highlighted an ambiguity in our manuscript. First, Figure 2 does present all of the terpenes that were detected in the experiment. We recognize that our wording was confusing. Our original intention was to state that both the thermal desorption and solvent extraction methods successfully detected compounds, thus validating the use of both techniques. However, we agree that this sentence was not essential and could be misinterpreted. To improve the clarity of the

manuscript, we have removed this sentence entirely.

Comment3:- Figure 4: I am not sure to understand the boxplot (panel (a)) as there are datapoints scattered horizontally (why?) and some blue dots are on the same levels as gray crosses. It is not clear from the caption if the crosses are outliers, but if they are, why are there blue dots (not outliers?) at the same height? In panel (b), the three colors used for MTs are very similar and make it difficult to see what compounds are present in the emissions from the figure.

Response3: We agree that the presentation was confusing, and we have revised both panels accordingly.

For Figure 4 (a): Our original figure superimposed a jittered scatter plot onto the boxplot, which caused the confusing horizontal distribution and resulted in outliers appearing twice (once as a boxplot outlier, once as a scatter point). We acknowledge this was misleading. We have revised the figure to a standard boxplot format, showing only the outliers as individual points, which makes the plot much clearer. Additionally, we changed the y-axis units to $\mu g \ (gdw)^{-1} \ h^{-1}$ to avoid the large numbers (e.g., 50,000) of the original ng-based scale and improve readability.

For Figure 4 (b): We also agree that the colors for the monoterpenes were too similar. We have addressed this by selecting a new, more distinct color palette in the revised figure to ensure each compound can be easily distinguished.

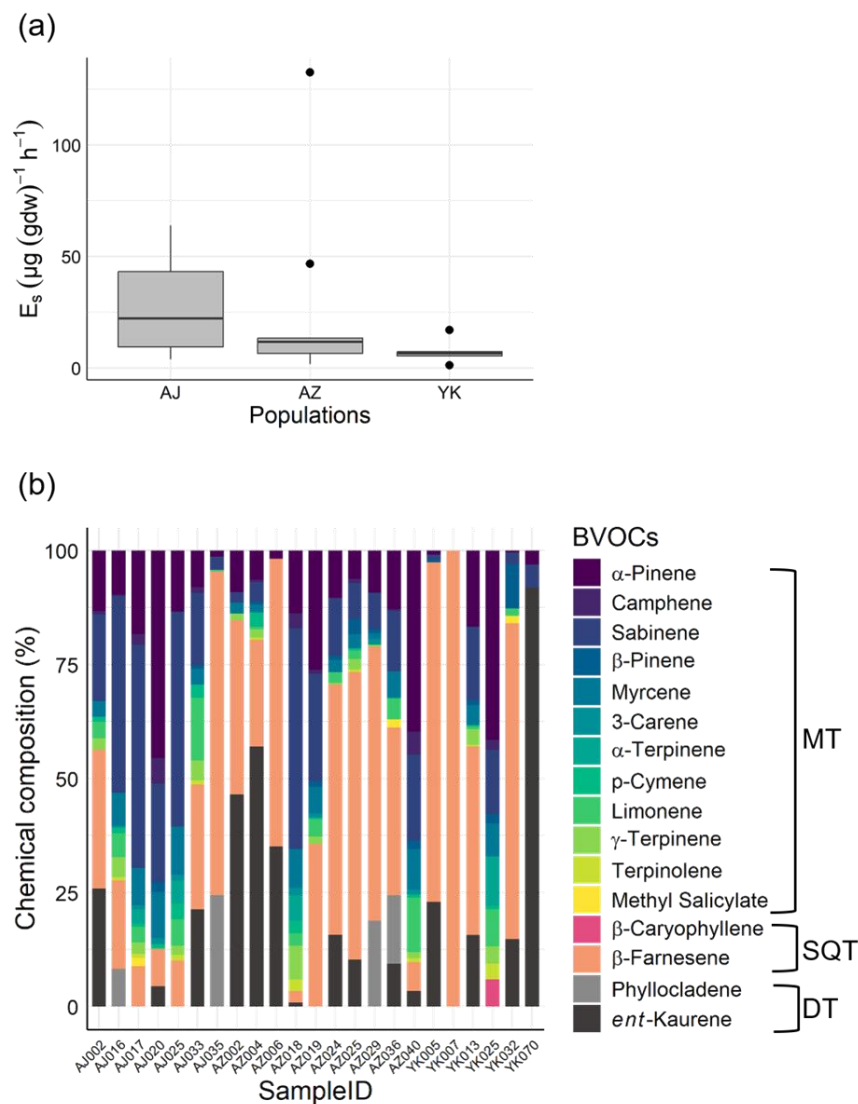The revised version is provided below for reference.

Fig5

demonstrate this in a subsequent manuscript with a larger dataset and more solid conclusions.

Response4: Thank you for your constructive comments. We agree that exploring the system's ability to capture environmental responses is a crucial aspect of its validation.

In our main field campaign (Chapter 4.1), the primary objective was to assess inter-individual variation. For this reason, we normalized all emission rates to a standard temperature to minimize temperature-induced variability and better resolve the underlying biological differences between trees.

However, we also recognize the importance of demonstrating the system's capability to track environmental drivers, a point also raised by Reviewer #2. Therefore, in response to the reviews, we conducted an additional field experiment specifically designed to monitor the diurnal variation of BVOC emissions from a single, intact tree.

These new results have been added as a new section (4.2) and figure (Fig. 5). This new section provides a clear demonstration of what can be concluded from our dataset regarding environmental responses, directly addressing your suggestion. While a more detailed investigation with a larger dataset is part of our future plans, we believe this addition significantly strengthens the manuscript by validating the system's performance under dynamic, field conditions. We appreciate your encouragement.

Comment5: In addition to my previous comments, I would like to add that, for the dataset published, it would be good to have for the BVOC data the inclusion as metadata of what units apply the numbers that are reported.

Response5: Thank you for your comments. As per your comment, we have added units to the published dataset.