

**Response to the comment on Associate Editor decision: Publish subject to minor revisions (review by editor) by Jens-Arne Subke.**

We are very thankful for your constructive comments and feedback on the manuscript submitted. We accepted all the comments provided and amended them accordingly.

**Line 21: Replace “This study aimed to investigate...” by “This study investigates...”.**

This was corrected, see Line 21.

**Lines 30-33: The last sentence of the abstract is not clear, please rephrase.** This was corrected as follows in Line 30-33: Spring sampling is recommended if the objective is to assess the tree's susceptibility to Hg uptake. Our study draws an adequate baseline for Eastern Mediterranean and the region with similar climatic inventories on Hg vegetation uptake. In addition to being a baseline to new studies on olive trees in the Mediterranean to reconstruct regional Hg pollution concentrations in the past and present.

**Line 66: Please replace “In terrestrial ecosystem, soil as part of the geological reservoir has naturally the highest Hg reservoir...” by “In terrestrial ecosystems, soils have the highest Hg reservoir...”.** This was corrected as suggested, see Line 64-66: In terrestrial ecosystem, soils have the highest Hg reservoir (Obrist et al., 2018; O'Connor et al., 2019) followed by trees (Yang et al., 2018).

**Line 75: “This pathway has...”.** This was corrected as suggested, see line Line 74: This pathway have has been described on several plant species in Hg contaminated sites (Assad et al. 2017).

**Line 193: Please remove crossed-out text.** This was removed.

**314: What do you mean by “elements”? Do you mean materials/pools?** This was corrected as per your comment, Check Line 301-304 Seasonal mean Hg concentration (ng/g) and standard deviations of the different studied material in both Bchaaleh and Kawkaba olive groves. Grey color indicated the highest Hg concentration values among the different material during the different seasons.

**417-419: I suggest a rephrasing. Instead of “Note that despite we mixed three generations of olive leaves (year N to N-3), the most recent of which are known to be low in mercury (Pleijel et al., 2021), the seasonal signal is still very remarkable.”, “A clear seasonal pattern of HG concentration in foliage is evident, despite being based on three generation of olive leaves (1-3 years old), with youngest leaves known to have low concentrations (Pleijel et al., 2021).”** This was amended as per your suggestion, see Line 407-411: A clear seasonal pattern of Hg concentration in foliage is evident, despite being based on three generation of olive leaves (1-3 years old), with youngest leaves known to have low concentrations (Pleijel et al., 2021), the seasonal signal is still very remarkable. Therefore, one can speculate that the mercury levels would have been higher if we had avoided the recently formed foliage during spring and early summer. This may also explain the large difference in Hg levels between litter and foliage.

**422: Another re-phrasing request. Instead of: “At our latitudes, Bchaaleh and Kawkaba foliage evergreen olive trees show...”, please put: “Evergreen olive foliage at our sites show...”.** This sentence was corrected according to your suggestion, see Line 412-415: Evergreen olive foliage at our sites show a decrease in Hg contents from end of March to late August, with minimum values centered in August suggesting a decline of the plant Hg uptake likely explained by the reduction of the stomatal conductance (Lindberg et al., 2007; Pleijel et al., 2021).

**426/427: I’m not sure what these two sentences (“Year 2020 has higher foliage Hg values than 2019. This can be related to a higher vegetation uptake in 2020 in comparison to 2019”) add; they indicate interannual variation but no clear explanation, whilst text before and after discuss seasonality. I suggest deleting these sentences.** This sentence was deleted, see Line 416-417.

**456-473: This section outlines basic ecophysiology for water economy in arid regions, and the connection to Hg dynamics is weak. As it is speculative and so loosely connected to results, I suggest deleting this section to maintain a clearer focus in a shorter discussion. Also the following role of mycorrhizal fungo is speculative and can be cut; if**

**connected meaningfully to the general discussion of Hg pathways, I think this may remain.** The following lines has been deleted, see Line 451- 467.

**491: “a narrow range”.** This was corrected, see Line 478.

**496: “statistically significant differences”.** It was corrected as suggested, see Line 483-484:  
At a seasonal scale, the averaged Hg values of soil system show statistically significant differences between the four seasons,

**500: same as above.** This was corrected as suggested, see Line 484-486: while stems show statistically significant differences significant difference between winter (lowest values) and spring (p-value= 0.030) and winter-autumn (p-value= 0.047) in Bchaaleh grove mostly similar to foliage changes.