Thank you for helpful comments and constructive suggestions on the manuscript. We will consider and response every comments below:

When I read title and abstract of the paper, my first impression was that the mosses were stored in a field-wet state. In became clear just in the M&M section that the mosses were stored air-dried and hermetically sealed. I suggest to mention that point in the abstract.
Agreed. We will add the storage state in the abstract.

I think it would also be a great idea to get an impression of the relative humidity during storage.
We agree with you and Reviewer #2. It will be revised.

The success of incubation experiments often depends on how well experimental conditions match the niche requirements of the target organisms, in particular those with narrow ecological amplitudes. For example, low gametophyte increment, germination rate and delayed initial germination of Barbula unguiculata does not necessarily mean that this species generally is outperformed by the Dedymodon species. It may also indicate that the experimental conditions better matched the ecological requirements of the latter, and that other experimental conditions may show a different picture. Hence, I miss in the paper some discussion of the ecological niche requirements of the particular species investigated. For example, Barbula unguiculata Hedw. and Didymodon vinealis (Brid.) Zander var. vinealis differ with their requirements to light: While both of these species prefer open lands, Barbula unguiculata Hedw. may grow in shadowed areas with down to 30% of relative light intensity, whereas Didymodon vinealis (Brid.) Zander var. vinealis does not develop at relative light intensities below 50% (ISBN-13: 978-3825281045). As the samples were taken at north facing slopes, which possibly receive shadow, I recommend to consult the botanical literature and to consider ecological niche requirements in the discussion of implications for the practice. Further, a more precise description of the sampling procedure and sampling spots might be helpful.
Thank you for insightful comment on ecological niche requirements of mosses. We will add a list of moss species including ecological information and more precise sampling design to the revised manuscript. We believe that different niche requirement (e.g. species-specific DT) will influence the choice of moss inocula on artificial cultivation and biocrust restoration, thus three species were compared in the paper. However, it seems be unclear to readers. We will revise the manuscript.

Minor remarks
M&M
p. 4 l. 5 ff.: The weights of 100 and 50 mg of sample for sugar and chlorophyll measurement seem little to ascertain representative sampling. How many replicates were analysed?
Three replicates were analysed and had 100 mg in every replicate for sugar measurement. Similarly, there was 50 mg in a replicate for chlorophyll measurement.

p. 5 l. 17.: Please check the correct usage of the terms "seed" and "hypocotyl" in conjunction

with mosses. Again, I recommend to consult the botanical literature to be more precise.
It will be revised.

Results

Figure 2: I needed to switch between Table 1 and Figure 2 to compare initial values with the temperature effect. I would find Figure 2 easier to comprehend if the initial values could be somehow depicted there (as horizontal lines?).
Good idea! We will revise figures as you said.