

This paper examines the influence of dry storage temperature on regeneration and physiology in three DT mosses from the Loess Plateau. It is a relatively simple study, but does provide important information for moss cultivation in a restoration context, though because of species-specific responses, pre-treatment environmental effects, and RH considerations during drying and dry periods, may not be widely generalizable.

Thank you for carefully reading and many helpful comments. We will consider and response every comments below:

Abstract: L14. I think you mean temperature "levels"

Yes. It will be changed in the revised manuscript.

L28. cell injury seems vague here. Perhaps mention when you discuss what MDA is above
The decrease of soluble sugar may cause cellular protein denaturation upon desiccation. Thus, the phrase "cell injury" actually included not only membrane damage showed by MDA, but also protein injury showed by soluble sugar.

Introduction In general, you miss out on some key background research by Stark and Greenwood, who have been examining desiccation and rehydration in *Syntrichia* for years.

Thank you for providing important information about DT. They will be added to the revised manuscript.

L36. "soil fertility accumulation" is an odd phrase

Agreed. It will be revised.

P2 L3. "culturing artificially" perhaps should be transposed?

Agreed. It will be revised.

L6. What is this "theory"? Is this necessary to say?

No. There is little theory research on vegetative propagation of mosses compare with sexual reproduction. We will delete the word.

Paragraph starting with "Desiccation tolerance.." is hard to follow. There seems to be too many ideas in it, and the info on *Grimmia* seems oddly specific

Agreed. The information about DT should be simplified. In recently years, some researchers (e.g. Stark et al. 2005) studied DT by culturing shoots, which guided us to consider impact of DT on vegetative propagation. However, we have some logistic problems and they will be revised.

L35. Omit sentence beginning with "Actually.."

Agreed. It will be revised.

Methods Collection: Were they all growing together when they were collected? Were the different species in different microclimates?

The three species were collected from different plots. Unfortunately, we do not have any data

about the microclimates, though we collected a given species in same plot.

P3L25. How long did it take moss to dry? Was it different for each species? What was the RH? These are crucial points that relate to regeneration.

We dried all three species for 24-48 hours. Unfortunately, we do not have the data on RH during drying. Nevertheless, most of gametophytes were dry (e.g. Figure 1) when we collected moss crust. We believed there was little effect caused by RH during drying.



Figure 1 *D. vinealis* before collected

L37. What was the equilibrating RH during storage? Also, I am unclear on the actual function of the ziploc baggies here.

The equilibrating RH was 55% and will be add to the revised manuscript. On account of we stored mosses in refrigerators or growth chambers (the detail can also read in Answer to Reviewer #1) with different RH, the ziplock baggies were used for preventing water from air.

P5L10. Was 25 days the entire length of the regeneration study then?

After new gametophytes germinated, we continued culturing for 25 days. Thus, the entire lengths of the regeneration study were 30 days in *D. vinealis* and *D. tectorum*, and 35 days in *B. unguiculata*.

L11. Save for results.

It will be revised.

L12. Anaogy with seed germination is an interesting idea, but I think you're missing out on key life stages that are missing in angiosperms, like protonema. Was protonemal presence / extent quantified? What about gemmae?

In fact, we ever tried to measure the timing of protonemal production and protonemal growth rate in trial tests. Nevertheless, mosses protonema germinated lately made it difficult to

differentiate from soil. Furthermore, there were not gemmae in three species except *Didymodon tectorum*.

Results Fig.1A is hard to interpret. Are the bars totals after the 25 day regeneration period?
Fig. 1 shows results of fifth observation. Thus, the bars are totals after full regeneration period. We will revise description of the figure.

Table 1 and Fig 2 kind of go together, and I wished to be able to compare them more easily.
Is there a way to incorporate the initial values into Fig. 2 or at least place the table closer to it?
Reviewer #3 suggested adding the initial values (depicted by horizontal lines) into Fig. 2, which may be easier to comprehend.

Table 4: Why not label the columns with the physiological indexes?
Agreed. It will be revised.

Discussion Careful with over-use of adverbs (Contrarily, Particularly) that don't improve sentences. Overall, while the separate sections are nice, the organization within them is a bit challenging. For example, L35 I don't think a conclusion is appropriate here.
Also, in section 4.3 and others I'm noticing less time is spent discussing the current work, and more is spent bringing in related work. It begins to get cumbersome, and the reader loses sight of the key results. A general reframing to focus on key results would be helpful.
Thank you for your comments in language and organization. We will make effort to improve English and revise the organization in the revised manuscript.

Discussion L6-7. I don't understand what the point of this sentence is.
After read again, we find this sentence should be deleted.

Notes on select specific BG criteria: The paper presents some novel data, but the scope is limited. Much of the scientific methods are valid and outlined well, although the authors miss out on specific drying and storage conditions that could have influenced results more than temperature. Language could be more fluent and precise in numerous places.
Thank you for pointing out mistakes and providing many advices! We will revise the manuscript as your suggestion.