

Review 3 Hess-2020-446

A comparative study of plant water extraction methods for isotopic analyses: Scholander-type pressure chamber vs. cryogenic vacuum distillation

General comments:

I will dive right in, since I summarized the manuscript the last two times, I reviewed it.

I think I have to apologize for not making my points clear enough, I will try to here:

In the results section of this revised version of the manuscript the authors compare every CVD extracted tissue to SPC extracted tissue.

The only comparison I think the authors can argue to be valid is that of SPC and CVDTwB and therefore, in my opinion, the only comparison that should be carried out and communicated in the results section.

It is an **a priori** assumption that the methods are **not** comparable for all the other plant tissues you extracted with CVD and therefore it is not an issue to be discussed but a comparison that should not be carried out in the first place.

Therefore my suggestion would be for you to take this under consideration and revise the manuscript accordingly. Especially in these sections 3.4 Data analysis, 4 Results, and 5. Discussion you should refrain from comparing all but CVDTwB and SPC.

I'm very sorry if this is my fault for not communicating this strongly enough.

I think you can very well communicate the other CVD extracted data as a comparison of plant tissue differences but not to compare the two methods.

I would also again encourage you to have a native speaker check the revised version.

Specific comments:

Introduction:

L48 the extraction of water directly from the stem due to positive pressure on the inside is only possible for very few tree species, otherwise no one would have to ever extract any plant tissues. Please make sure to clarify this when adding that reference (Zhao 2016)

L64 which two versions of CVD are you referring to here?

L94 check formatting of references

L114ff Here you switch to present tense while the rest of the introduction is written in past tense. I would suggest choosing either one consistently throughout the manuscript.

Material and Methods

L188 The bark and the leaves remain attached to the twig on what basis? In physiology the bark is usually removed to avoid phloem contamination. If you insist on keeping this reference here, I would ask you to dig a little bit into physiology research literature and at least mention that this is not the standard procedure when extracting xylem using the Scholander pressure chamber.

3.2

L213/214 see my concern above.

Table 1 Did you notice the differences in hydrogen isotopes for beech SPC and CVDTwB and compare that to the oxygen isotopes? There is no difference in delta18O for CVDTwB and SPC (-5.75 SPC and -5.74 CVDTwB) but 8permil for the same comparison of delta2H. That might just be the bias for your cryogenic extraction line. It is a finding worth mentioning in the discussion when elaborating on the cryo bias.

Results:

L298 – 301 these sentences say the same thing twice, please rephrase

Discussion

I like the discussion now. However, please consider my general comment for section 5.2

Concluding remarks

As I already said in my former reviews, I think this reads like another summary and not a conclusion. I would suggest deleting it.

Also, Line504 "SPC is not an alternative to CVD..." directly contradicts the following lines suggesting using SPC when interested in accessing transpiration. It sounds like the better alternative to me.