

FILE NOTE

Subject: Interim fungus cellar results
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Durability screening using the AWPC accelerated field simulator (AFS) test (Australasian Wood Preservation Committee, 2015) has been underway for 4 years. The species tested are as follows:

Douglas-fir (SWP funded)

- Two thermal modification treatments (220°C & 230°C) plus unmodified controls
- Heartwood and sapwood stakelets tested separately
- Commercial H3.2 CCA radiata pine included as treatment control

Cupressus lusitanica (Scion SSIF funded)

- One thermal modification treatment (220°C) plus unmodified controls
- Heartwood and sapwood stakelets tested separately
- Totara heartwood included as naturally durable control

For each treatment (combination of species, modification level and heartwood or sapwood), 10-12 replicate stakelets are tested. The stakelets are inspected every 3 months and given a rating from 10 (No decay) to 0 (failed due to decay). The average condition of each set of stakelets is shown in Figures 1-2. Error bars indicating the standard error at each point are included to indicate the level of variability between individual stakelets.

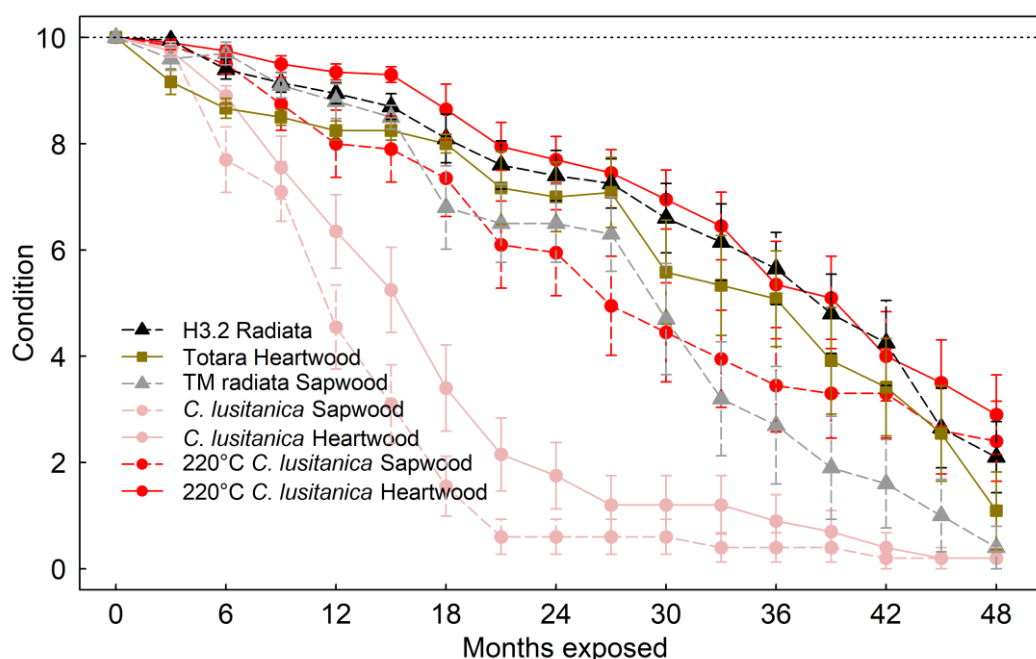


Figure 1. Average condition of *C. lusitanica* stakelets after 48 months' exposure. Error bars show the standard error at each point.

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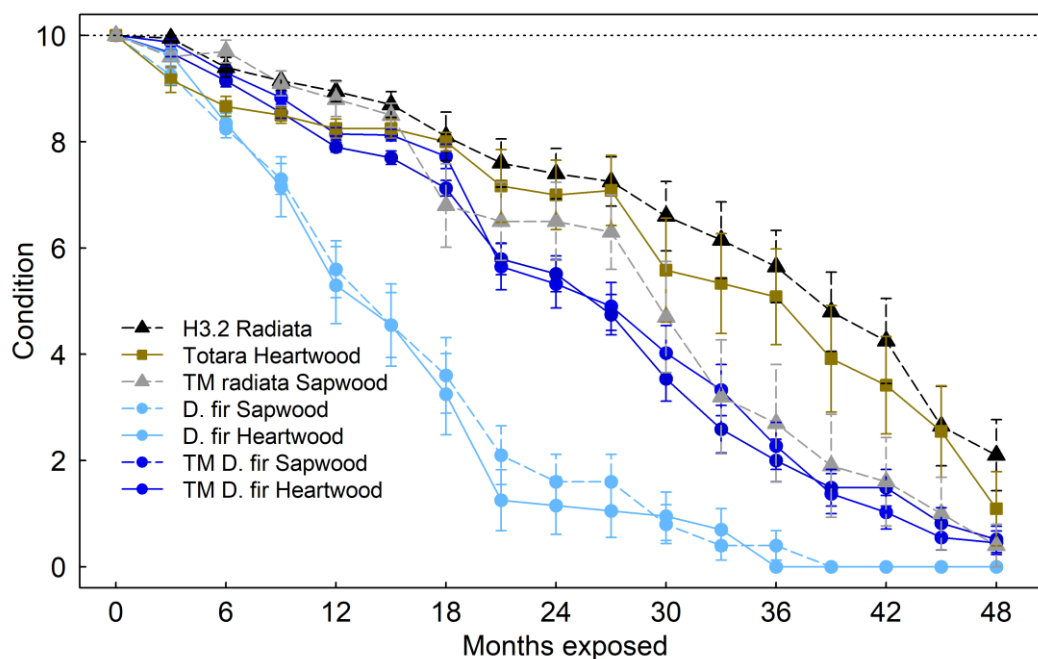


Figure 2. Average condition of Douglas-fir stakelets after 48 months' exposure. Error bars show the standard error at each point.

The modified *C. lusitanica* stakelets are in significantly better condition than the unmodified stakelets, suggesting improved durability of both the heartwood and the sapwood. The modified Douglas-fir stakelets are not performing as well as the *C. lusitanica*, but they are still showing improvement over the unmodified controls, and are performing similarly to thermally modified radiata pine sapwood.

Conclusions

The thermally modified Douglas-fir and *C. lusitanica* are showing improved durability in both the heartwood and the sapwood. Longer term durability testing is underway to evaluate the suitability of these types of thermally modified wood.

Fungus cellar stakelet tests are a screening test. The results presented are interim and therefore are not an exact ranking of the durability of the different treatments. This accelerated, screening trial provides an indication of whether there are durability improvements from the thermal modification, and whether it is worth investing in further testing to better understand the durability of the thermally modified boards.

Further work

This testing will continue until all the stakelets have decayed.

Because of the promising results for both *C. lusitanica* and Douglas-fir outdoor durability tests (decking and flat panel) were installed in September 2021.

References

Australasian Wood Preservation Committee. (2015). *Protocols for assessment of wood preservatives*.