Epidemiology of *Phytophthora boodjera* prov. nom., a damping-off pathogen in tree production nurseries in Western Australia

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The recently described plant pathogen *P. boodjera* prov. nom. (Figure 1) is responsible for damping-off and mortality of *Eucalyptus* seedlings in Western Australian (WA) tree production nurseries. It was first isolated in early 2012, in a nursery producing mostly eucalypt seedlings for restoration purposes in agricultural land. Symptoms included mortality of newly-germinated seedlings or stunted plant growth (Figure 2). The following experiments were established to determine the epidemiology of this pathogen.

Results

- *P. boodjera* can be reisolated from used seedling trays but not from used trays that have been sterilised or pasteurised.
- *Eucalyptus* species are the host of *P. boodjera* (Figure 3).
- The infection process does not require excess water (Figure 4).
- *P. boodjera* was not present in seed, fungal gnats or dust collected from the site, or irrigation water.

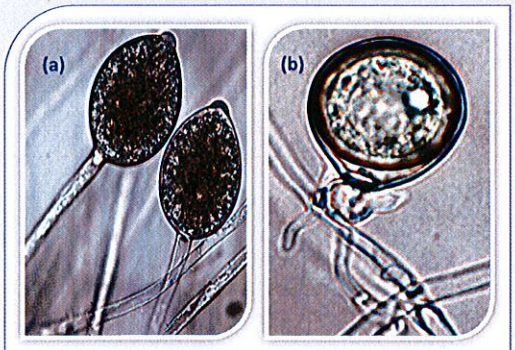

Figure 1. Sporangia (a) and paragynous oospore (b) of *P. boodjera*.

Figure 2. Mortality and stunted growth of *Eucalyptus* seedlings.

Figure 3. *P. boodjera* infected *E. kochii* ssp. *plennissima* (a) but not *Cytisus proliferus* (b).

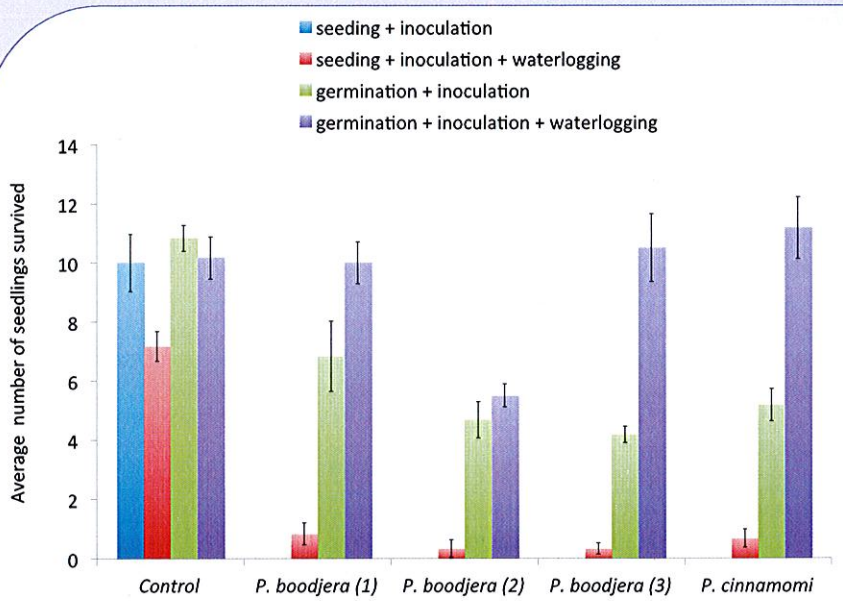

Figure 4. Average number of seedlings of *E. kochii* ssp. *plenissima* after inoculation with *Phytophthora*. Bars = standard error of the mean.

Conclusions and current work

- In the 2013 season, all trays containing potting mix were pasteurised and no symptoms developed in any seedlings although the pathogen is known to be persisting on site.
- Good hygiene coupled with pasteurisation prevented disease development.
- The potting mix itself, or on-site contamination of the potting mix, are the most likely sources of *P. boodjera* inoculum in the trays.
- We are establishing a trial to determine whether *P. boodjera* is present or not in the biodiversity planting sites where seedlings from the 2010 and 2011 seasons were planted out.

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