Eutypa lata, causal agent of Eutypa dieback, causes yield loss in wine regions worldwide. Research into varietal susceptibility has been limited. The aim of this research was to assess extent of colonisation, size of xylem vessels and lignin and cellulose content of a selection of varieties known to differ in susceptibility.

Material and Methods

Plant Material:
- *Vitis vinifera*
- Considered tolerant: Merlot (ME), Petit Verdot (PV), Ughetta (UG)
- Considered susceptible: Sauvignon Blanc (SB), Cabernet Sauvignon (CS), Shiraz (SH)

Detached Cane Assay (DCA) and Isolation:
- Single node cuttings placed in polystyrene boards floating in water
- Top wound inoculated with *E. lata* ascospore suspension
- 8 weeks growth, then bark removed and wood surface disinfested
- Consecutive 2-mm sections placed on potato dextrose agar, and distance *E. lata* recovered was recorded
- Additional canes (non-inoculated, week 0, and inoculated, week 8) dried and ground

Results

- No clear difference between varieties considered susceptible and tolerant in distance colonised by *E. lata*, except that Petit Verdot (tolerant variety) was colonised significantly less than some of the varieties (Fig 1)
- Cellulose content of the tolerant varieties was significantly less than the susceptible varieties (Fig 2)
- Lignin content of Auxerrois and Merlot (tolerant) was significantly greater than of other varieties (Fig 3)
- Sauvignon Blanc (susceptible) had the largest vessels (Figs 4 and 5)
- Auxerrois, Petit Verdot and Ughetta (tolerant) had the smallest vessels (Fig 5)

Conclusions

It has been proposed that smaller xylem vessels may become occluded, limiting fungal colonisation. Three of the tolerant varieties tested here had significantly smaller vessels than the other varieties. The difference between initial and final cellulose and lignin content cannot be attributed solely to infection by *E. lata*; due to time constraints, non-inoculated canes were analysed without having grown in the DCA. Tolerant varieties had less cellulose, perhaps because the plant uses it in defence against attack. Grapevines may produce lignin, which is recalcitrant to fungal breakdown, as a defence compound. While greater lignin content in Auxerrois and Merlot may be related to defence, this could not be proved in this experiment. Various factors may influence tolerance of grapevine to Eutypa dieback, in particular, lignin content and xylem vessel size. The above findings suggest that Petit Verdot may warrant further study as a potentially tolerant variety.