



The effects of CCR2-deficiency on embolism formation and secondary cell wall (SCW) composition of drought-stressed poplar trees

composition of drought-stressed poplar trees

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Relevance: Is growing poplars with CCR2 deficiency feasible for biomass usage in a drying climate?

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De Meester *et al.* 2020:

CCR2 (-/*) line 12 poplars, which have one null and one haploinsufficient allele of CCR2, show a 10% reduction in lignin content and an increase of up to 41% in saccharification efficiency, while displaying WT-like growth. This is promising for bioethanol production.

Yu *et al.* 2021:

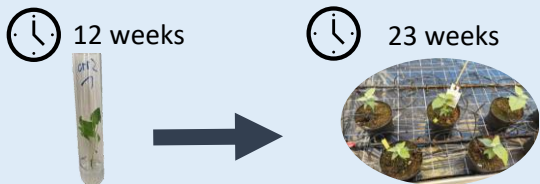
CCR2 is the only gene involved in the monolignol synthesis that is upregulated under drought stress.

Ménard *et al.* 2022:

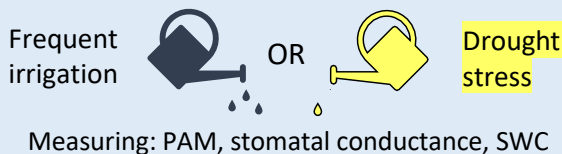
Lignin content and composition in the SCW influence flexibility and drought resilience of xylem vessels.

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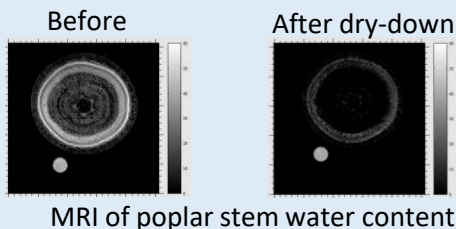
Growing poplars *in vitro* & on soil



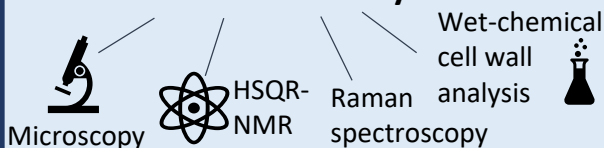
Treatment & stress monitoring



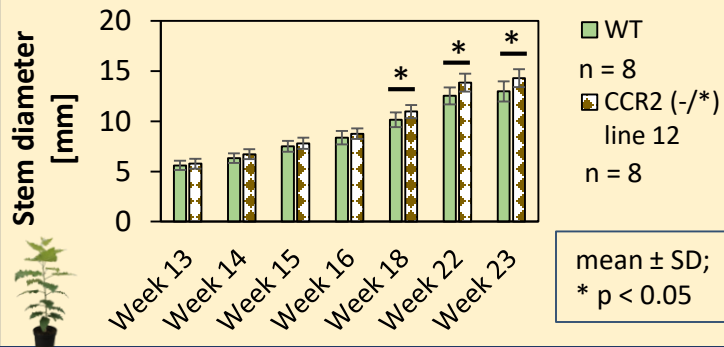
Observing embolism formation



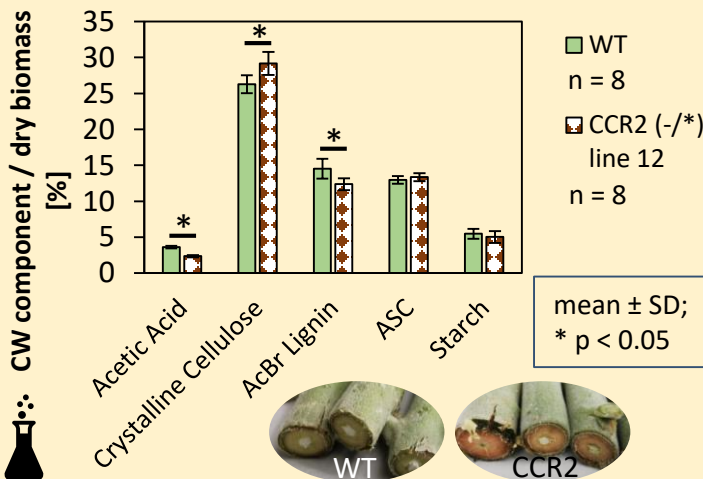
Harvest and analyses



Characterisation of WT and CCR2 line 12 without stress



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- ❖ confirmed significantly lower lignin content in mutant
- ❖ unlike in De Meester *et al.*, 2020, mutant has shown a significantly higher stem diameter and cellulose content, as well as lower acetic acid content compared to WT