

fantastic fibres: new discoveries for future Australian cotton + ?



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cotton boll seed fibres:

- highly-cellulosic SCWs
- >94%cellulose; ~ 0% lignin

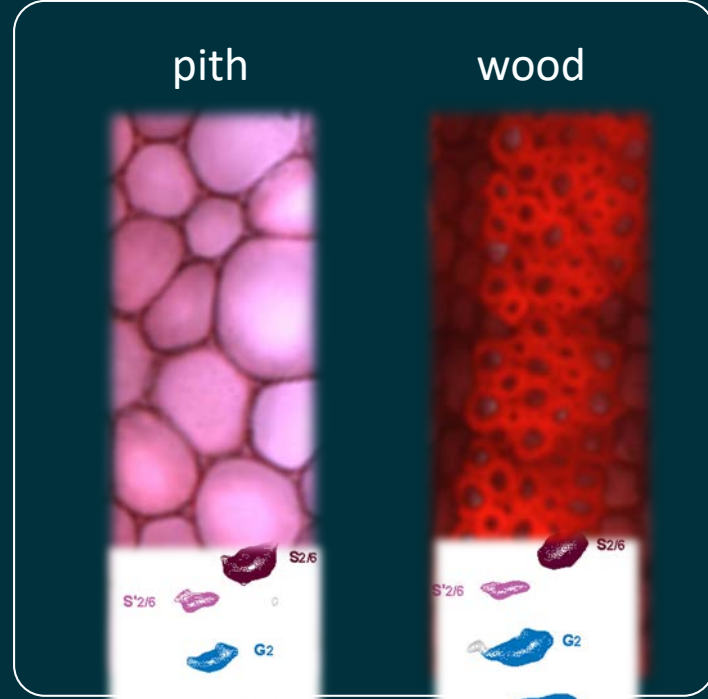
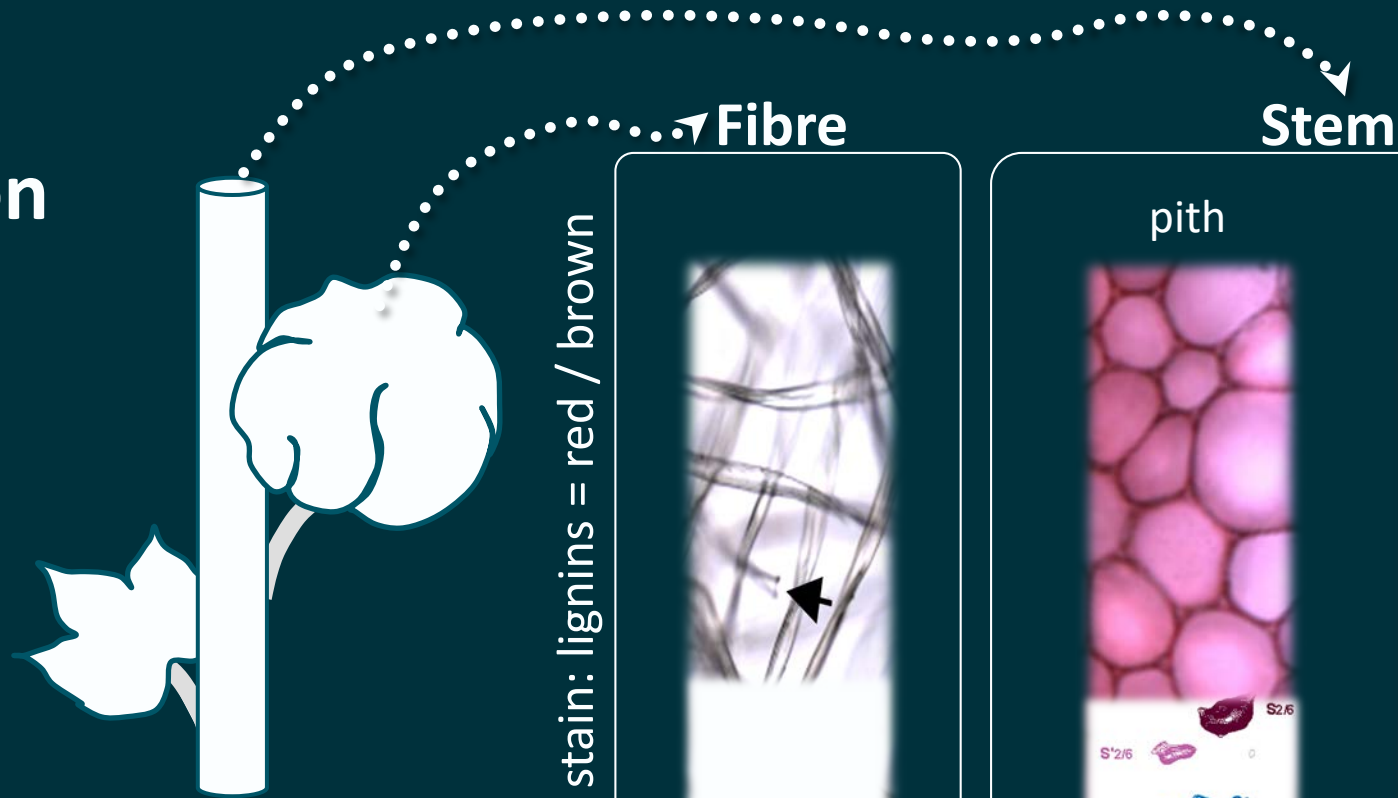
#SecondaryCellWalls; without them there would be no cotton industry

cotton stem 'wood' (xylem vessels & fibres):

- ligno-cellulosic SCWs
- ~50% cellulose; ~ 15% lignin

MacMillan & Birke et al. (2017) BMC Genomics
MacMillan and Pettolino (2018) CottonGrower

Cotton: "unusual" lignification



NMR – lignin structure



MacMillan & Birke et al. (2017) BMC Genomics

MacMillan & Birke et al. (2013) J Plant Biochem Physiol

cotton:

new insights into

plant

secondary cell walls

what these findings are / can be used for future AU cotton:

- **molecular tools *for new differentiated fibres.***

*for targeting new / different molecules,
to different cell-parts, at different times / tissues*

- **lignins, cellulose.**

regulation, synthesis, structure, use

- **genetic-association.**

for quality traits

CSIRO Cotton Biotechnology Group (Canberra), 2018



Filomena Pettolino



Viv Rolland



Madeline Mitchell



Philippe Moncuquet

thank you



what's your fibre-fascination ?

**what future cotton products
are you interested in?**