



Australian
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PhD exit seminar: Wheat endosperm starch phosphate importance in germination and early growth

Tuesday 10 December 2013 1 – 2pm

Andrew Bowerman Pogson Lab and CSIRO Plant Industry

Slatyer seminar room R.N. Robertson Building (Bldg. 46), Linnaeus Way, ANU



Starch phosphate content alters starch fine structure, altering degradation rates, and chemical and rheological properties. However, almost all knowledge of this importance comes from leaf (diurnal starch storage) or tuber starches (amyloplast-based storage starch). Given the vastly different conditions found in these tissues and in wheat endosperm during germination, investigations have been performed to examine the effect reduced phosphate content has on germination and early growth. This work was performed using wheat lines transformed with an RNAi construct targeting the main gene responsible for addition of phosphate groups to starch, Glucan, Water Dikinase.

We report on general grain phenotype changes including grain size increases, starch structural properties and degradation, and a reduction in grain germination rate. We find altered hormone balance in early growth, increased coleoptile growth and hypothesise on the role and importance of phosphorylation of starch in the cereal endosperm. This work builds on evidence that starch degradation in plants differs depending on the tissue in question and that the particular role that structural starch modifications may play could provide avenues of future research into cereal seedling establishment.

Presented by

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Plant Science Seminar Series information:
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