



Cellular changes during *Medicago truncatula* hypocotyl growth depend on temperature and genotype.

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Résumé en anglais	<p>Hypocotyl growth is a key characteristic for plant emergence, influenced by environmental conditions, particularly temperature, and varying among genotypes. Cellular changes in <i>Medicago truncatula</i> hypocotyl were characterized to study the impact of the environment on heterotrophic growth and analyze differences between genotypes. The number and length of epidermal cells, ploidy levels, and sugar contents were measured in hypocotyls grown in the dark at 20 °C and 10 °C using two genotypes with contrasting maximum hypocotyl length. Hypocotyl elongation in the dark was due to cell elongation and not to an increase in cell number. A marked increase in cell ploidy level was observed just after germination and until mid elongation of the hypocotyl under all treatments. Larger ploidy levels were also observed in the genotype with the shorter hypocotyl and in cold conditions, but they were associated with larger cells. The increase in ploidy level and in cell volume was concomitant with a marked increase in glucose and fructose contents in the hypocotyl. Finally, differences in hypocotyl length were mainly due to different number of epidermal cells in the seed embryo, shown as a key characteristic of genotypic differences, whereas temperature during hypocotyl growth affected cell volume.</p>
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Liens

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