



Involvement of *Medicago truncatula* glutamate receptor-like channels in nitric oxide production under short-term water deficit stress

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Mots-clés	ABA [6], Glutamate receptor [7], NO [8], PEG [9], Seedling [10]
Résumé en anglais	<p>Early stages of plant development are highly susceptible to environmental cues, and seedlings have to develop sophisticated mechanisms to sense and respond to abiotic stresses. We have previously identified that abscisic acid (ABA), nitric oxide (NO) and modulation of nitrogen metabolism are involved in adaptive responses in <i>Medicago truncatula</i> seedlings under water deficit stress. Here, we investigated whether glutamate receptor-like channels (GLRs) played a role in the developmental physiological processes of <i>Medicago</i> seedlings during post-germination after a short-term water deficit stress. Twenty-nine independent MtGLR genes have been identified and then divided into four clades following a phylogenetic analysis; seventeen of them exhibited specific domains which are characteristic of animal ionotropic glutamate receptors. Under drought stress, ABA-induced NO accumulation was significantly reduced in presence of a GLR competitive antagonist, suggesting that this water deficit-induced endogenous NO production was mediated through a MtGLR-dependent pathway. Water deficit-induced inhibition of embryo axis elongation was strongly reduced whereas loss of water content was alleviated when MtGLRs were inhibited. These results suggest that glutamate receptors-like channels are required, through their involvement in NO production, in adaptive responses under short-term water-deficit stress during <i>Medicago</i> seedling establishment.</p>
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- [2] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=12209>
- [3] <http://okina.univ-angers.fr/mariechristine.lepaven/publications>
- [4] <http://okina.univ-angers.fr/m.limami/publications>
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- [13] <https://www.sciencedirect.com/science/article/pii/S0176161719300173?via%3Dihub>

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