



# Drought stress provokes the down-regulation of methionine and ethylene biosynthesis pathways in *Medicago truncatula* roots and nodules

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Auteur	Larrainzar, Estibaliz [1], Molenaar, Johanna A [2], Wienkoop, Stefanie [3], Gil-Quintana, Erena [4], Alibert, Bénédicte [5], Limami, Anis M. [6], Arrese-Igor, Cesar [7], González, Esther M [8]
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Résumé en anglais	<p>Symbiotic nitrogen fixation is one of the first physiological processes inhibited in legume plants under water-deficit conditions. Despite the progress made in the last decades, the molecular mechanisms behind this regulation are not fully understood yet. Recent proteomic work carried out in the model legume <i>Medicago truncatula</i> provided the first indications of a possible involvement of nodule methionine (Met) biosynthesis and related pathways in response to water-deficit conditions. To better understand this involvement, the drought-induced changes in expression and content of enzymes involved in the biosynthesis of Met, S-adenosyl-L-methionine (SAM) and ethylene in <i>M. truncatula</i> root and nodules were analyzed using targeted approaches. Nitrogen-fixing plants were subjected to a progressive water deficit and a subsequent recovery period. Besides the physiological characterization of the plants, the content of total sulphur, sulphate and main S-containing metabolites was measured. Results presented here show that S availability is not a limiting factor in the drought-induced decline of nitrogen fixation rates in <i>M. truncatula</i> plants and provide evidences for a down-regulation of the Met and ethylene biosynthesis pathways in roots and nodules in response to water-deficit conditions.</p>
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