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## The interactive effect of phosphorus and nitrogen on "in vitro" spore germination, root growth and mycorrhizal colonization.

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The effects of P and N amendment and its interactions on spore germination, root growth and colonized root length by *Glomus etunicatum* were studied "in vitro" in RiT - DNA transformed roots of *Anthylis vulneraria*. Three N media concentrations ( 5, 10 and 50 mg. l<sup>-1</sup> ) at a constant P level ( 2 mg. l<sup>-1</sup> ) and three P media concentrations ( 2, 10 and 20 mg. l<sup>-1</sup> ) at a constant N level ( 5 mg. l<sup>-1</sup> ) were utilized as treatments. Bécard & Fortin (1988) medium was used as a basal medium for root growth and colonized root length, and water / agar ( 0,8 % ) media was the control for spore germination. Spore germination of *Glomus etunicatum* at low P level was suppressed by N addition in relation to the control media, and at low N level addition of P stimulated spore germination, but no significant difference (  $p < 0.05$  ) was observed between the control and the addition of 20 mg. l<sup>-1</sup> of P. Total root length was stimulated by N addition at low P level, but no significant difference (  $p < 0,05$  ) was observed between 10 and 50 mg. l<sup>-1</sup> of N. P addition at low N level media also stimulated total root growth, and a significant difference (  $p < 0,05$  ) was observed among P concentrations. Colonized root length by *Glomus etunicatum* increased significantly (  $p < 0,05$  ) with P additions at low N levels. Under low P level no significant differences were found between 10 and 50 mg. l<sup>-1</sup> of N. These results demonstrate that the interaction between P and N affects spore germination, root growth and colonized root length in different ways.

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**Key words:** Mycorrhiza - spore germination - root colonization - *Glomus etunicatum*.

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