

# How does arbuscular mycorrhiza symbiosis affect photosynthesis in the model legume *Medicago truncatula*?



Final thesis, Master program, Molecular Genetics and Physiology 2010

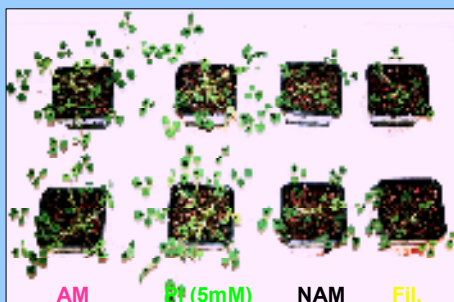
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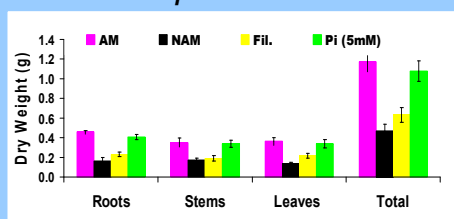
**Background:** The Arbuscular mycorrhiza (AM) is an endosymbiont of higher plant roots. This endosymbiosis is based on the mutual exchange of nutrients between plant and fungus. AM symbiosis increases the sink size of the roots, and in response to this, the plant increases its photosynthetic performance.

**Aim:** To investigate the pathway used by plants during AM symbiosis to increase photosynthetic performance.

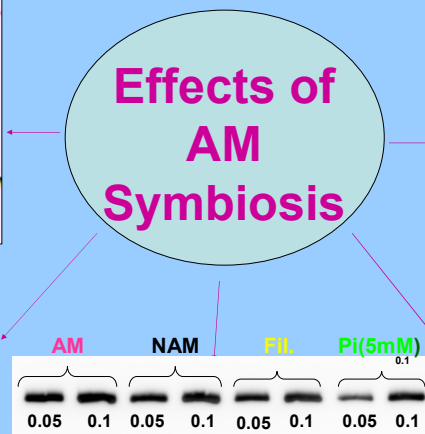
**Plant groups:** **AM:** Mycorrhized  
**NAM:** Non mycorrhized  
**Fil.:** Bacterial filtrate  
**Pi :** Watered with 5mM  $\text{KH}_2\text{PO}_4$



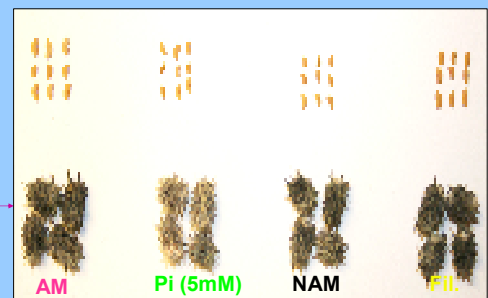
**Fig.1:** Appearance of 4 weeks old plants



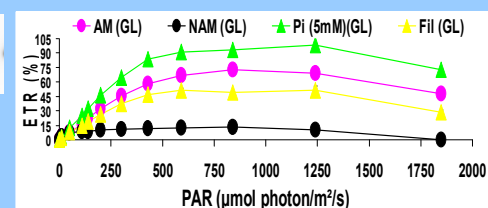
**Fig.2:** Plant biomass



**Fig.3:** Level of light harvesting chlorophyll a binding protein.



**Fig.4:** Reproductive fitness



**Fig.5:** Light curve of photosynthetic Electron Transport Rate

**Conclusion:** AM symbiosis increases both the efficiency and the capacity of photosynthetic machinery in the model legume *M. truncatula*.

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