

Transcriptomics of ammonium nutrition in the conifer *Pinus pinaster* Aiton

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Nitrogen is an important element for all living beings because it is part of macromolecules as significant as nucleic acids or amino acids. For plants, it constitutes a limiting factor in their growth and development¹ due to their low natural availability in soils thus limiting primary production in ecosystems².

*Conifers are a group of gymnosperm plants that form large forest extensions of vegetation, being the main constituents of forests in boreal ecosystems³ where ammonium is the main source of inorganic nitrogen⁴. Due to the characteristics of the soils in which conifers usually grow, these plants have developed a high tolerance to the presence of ammonium, which may constitute their main source of inorganic nitrogen⁵. The maritime pine (*Pinus pinaster* Aiton) is a conifer that has a wide distribution in the western Mediterranean area and has been widely used in reforestation, soil stabilization tasks and industrially. In recent years, maritime pine has been the subject of multiple omic studies that have resulted in the acquisition of important tools and resources^{6,7}.*

The present work is focused on the analysis of the ammonium uptake and management efficiency, and its relationship with the biomass accumulation in maritime pine. For this purpose, several experiments have been developed in which pine seedlings have undergone different levels of ammonium nutrition, both in the short and long term. As a result of short-term experiments, the characterization of transcriptomic response to the process of ammonium nutrition (uptake and assimilation) is being studied at mRNA, lncRNA and miRNA level in roots. In relation to long-term experiments, ten different provenances of maritime pine seedlings were treated with different ammonium levels and the biomass changes were measured. The results obtained suggest the existence a certain phenotypic plasticity grade for this conifer.

Bibliografía

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FURTHER INFORMATION REQUIRED

- Name & Surname of the presenting author: *Francisco Ortigosa Peña*
- E-mail: fortigosa@uma.es
- Session: *Systems Biology and Omics*
- Communication (Oral or Poster): Oral
- Do you present your communication for the “Cátedra Luis de Camoens UC3M” award to the best FV2019’s communication by a young doctor? (yes/no) No
- Do you present your communication for the “Spanish Society of Plant Physiology” awards to the best FV2019’s communications by a doctoral student? (yes/no) No
- Do you apply for a SEFV PhD student fellowship? (yes/no) YES