

# Beneficial Microbes: Food, Pharma, Aqua & Beverages Industry

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## Below ground interactions between Mycorrhiza and Rhizobacteria prime: Above ground wheat defense

Alejandro Perez de Luque<sup>1</sup>, Heather Walker<sup>2</sup>, Jurriaan Ton<sup>2</sup> and Duncan D Cameron<sup>2</sup>

<sup>1</sup>University of Sheffield, UK

<sup>2</sup>IFAPA-Centro Alameda del Obispo, Spain

Plant breeding for resistance genes and chemical treatments are currently the main strategies to control plant diseases. However, withdrawal of agro-chemicals under new EU legislation and co-evolution of diseases to overcome crop resistance genes have increased the need to find alternative means to improve crop disease management. Disease suppression by root colonizing non-pathogenic micro-organisms has been recognized as a promising long-term strategy. Beneficial rhizosphere-colonizing micro-organisms, such as Arbuscular Mycorrhiza Fungi (AMF) and Plant Growth-Promoting Rhizobacteria (PGPR), can prime the plant immune system against pathogen attack. However, the complexity of the plant root micro-biome has hampered wide-ranging exploitation of these bio-control organisms in current crop protection schemes. In this work, we have evaluated the interaction between two beneficial micro-organisms, a mycorrhizal fungus *Glomus intraradices* and a plant growth promoting rhizo-bacterial strain *Pseudomonas putida* and investigated the mechanisms by which these microbes synergistically prime wheat *Triticum aestivum* for enhanced defensive responses.

### Biography

Alejandro Pérez-de-Luque is a plant researcher and agronomist, interested in resistance of plants against phytopathogens (parasitic plants, fungi, etc.). He started his career back in 1994, during the University studies, as undergraduate assistant in the Department of Biochemistry and Molecular Biology at the University of Córdoba (Spain). After getting the degree in Agronomical Engineering, he received a grant for PhD studies in the Department of Genetic at the University of Córdoba. He has been working in different institutes and researching centers in Spain, UK and Israel, and has been awarded contracts from the 'Juan de la Cierva' and 'Ramon y Cajal' Spanish post-doc programmes. He is a permanent researcher in the Department of Plant Breeding and Biotechnology at the IFAPA since 2009, and he held a two years Marie Curie Intra-European Fellowship at the University of Sheffield.

[alejandro.perez.luque@juntadeandalucia.es](mailto:alejandro.perez.luque@juntadeandalucia.es)

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