

RHIBAC – Rhizosphere bacteria for reduced fertilizer inputs in wheat

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A large number of non-leguminous plants (including cash crop species such as wheat and maize) are colonized by free-living diazotrophic bacteria. Plant growth-promoting rhizobacteria (PGPR) have been reported to enhance plant growth by inhibiting plant pathogens, by supplying host plants with nutrients or by facilitating nutrient acquisition. However, the importance of each of these mechanisms appears to depend on the plant and bacterial species as well as the environmental conditions. Due to the low reproducibility generally observed with the inoculation of cereal crops with PGPR, microbiologists, plant nutritionists, agronomists and agricultural suppliers have been gathered in the EU-funded project "RHIBAC" (<http://www.rhibac.org>). The aim of RHIBAC is to develop new PGPR inocula and to demonstrate their action with regard to growth promotion in European and South American soils and wheat genotypes. RHIBAC aims to achieve this through a better understanding of the interaction between PGPR and the host plant, improving root colonisation by PGPR and developing methods for production and application of PGPR inocula for wheat.

The following activities are included in the project: i) study of molecular pathways in PGPR involved in plant growth promotion; ii) examination the interaction of PGPR and specific crop genotypes background; iii) observation of root colonisation by PGPR; iv) development of new inocula formulations, including encapsulation and seed coating background; v) small-scale and larger scale demonstration field trials and to access efficacy and effect on soil nutrients of PGPR inoculation; and vi) assessment of compatibility of PGPR with other common biological agents used in the agriculture background.

Examples demonstrating individual experimental approaches and the materials involved will be presented.

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