Tomás Ruiz Argüeso

Professor of Microbiology (Catedrático)

Professional activities:

a) Teaching

Microbiology in the ETSIA (UPM), mainly “General Microbiology” and “Microbiology of Plant-Microorganism Interactions” area

b) Research

Plant-microorganism interactions research line, mainly in the *Rhizobium*-legume symbiosis field.

The major research activity has been the study of the evolution and biochemical and genetic characterization of hydrogen production and oxidation in legume nodules. The main achievements are: 1) Evaluate the relevance of H_2 evolution and oxidation in legume nodules and bacteroids, identification of genes responsible for hydrogen oxidation in *Rhizobium leguminosarum* as well as their regulation and function in hydrogenase enzyme synthesis; 2) Identification of mechanisms for nickel provision to bacteroids. Current interests include the construction of a model for the biosynthesis of the active rhizobial hydrogenase enzyme.

A second research line is the characterization of the *Rhizobium*-symbiosis of *Lupinus mariae-josephae* (Lmj), an endemic lupin in “terra rossa” soil with high pH and lime concentration in Valencia region (Spain). The main achievements are: 1) Isolation and phylogenetic characterization of a population of *Bradyrhizobum* strains, and definition of a new *Bradyrhizobium* species designated *Bradyrhizobium valentinum* LmjM3^T; 2) Devising a strategy for conservation of endangered wild legumes based on inoculation of seeds with selected symbiotically effective rhizobia strains. Present interests are the genomic characterization of Lmj nodulating *Bradyrhizobium*, and investigation of the evolution of Lmj populations in the Valencia region.