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Plant Biology

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Over the last years, the scientific activity has focused on soil microbiology, particularly with regard to plant-associated microorganisms. The main line of ongoing research concerns plant growth promoting bacteria and biofertilization. The work is based on the isolation and characterization of bacteria with plant beneficial activities, aiming at the selection of inoculants for agroforestry crops, in particular for pasture grass species. Covered aspects include the production of molecules stimulating plant growth, solubilization of immobilized phosphorus, biological nitrogen fixation, as well as activities potentially important for the biocontrol of phytopathogenic agents. Other areas of current research concern the evaluation of bioindicators of soil quality (enzyme activities and other indicators of microbial activity). Previous activity in Nuclear Magnetic Resonance applied to studies of physiology and bioenergetics of microorganisms, focusing in particular on the *in vivo* monitoring of phosphorus and carbon metabolism in intact microbial cells.