



TITLE AND FULL NAME: Dr. Ralf Koebnik

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LINK TO WEBPAGE: <https://en.ird.fr> / <https://euroxanth.eu>

TITLE OF PRESENTATION: Integrating science on *Xanthomonadaceae* for integrated plant disease management in Europe

ABSTRACT OF PRESENTATION

Bacteria of the family *Xanthomonadaceae*, including species of *Xanthomonas* and *Xylella fastidiosa*, belong to the most devastating plant pathogens continually challenging food security. Many of the pathogens are listed as quarantine organisms in the EU and their study is of uttermost importance. The concerned pathogens infect all kinds of crop plants, such as cereals, forage crops for ruminant feed, vegetables, fruits, shrubs and trees. For instance, the olive quick decline syndrome, caused by a sub-species of *Xylella fastidiosa* and affecting the most southern part of the Apulia region, is a recently emerging disease with dramatic economic, cultural and social impact.

In order to coordinate research and capacity building activities in the EU and in partnering countries, the EuroXanth COST (Coordination in Science and Technology) Action was implemented. This COST Action generates a platform that gathers experts from different disciplines, such as molecular diagnostics, molecular host-microbe interactions, plant resistance breeding, and applied microbiology. Joining their efforts helps to develop and implement effective plant protection schemes, be it via resistant crop cultivars or via other control mechanisms. In order to achieve this goal, scientists from major European institutions, regulatory bodies and commercial companies working on the various aspects of this complex of problems are getting mobilized and trained using all available COST tools, such as meetings, workshops, training schools, short-term scientific missions.

This COST Action is a truly pan-European initiative that brings together some of the brightest and best minds to join in an interdisciplinary network to develop strategies for sustainably protecting plants and significantly reducing yield losses. Via links to international partner countries, technology exchange is ensured with some of the best laboratories in the world, where similar diseases are studied since a long time. Protocols for disease diagnostics are being revised and a training school in Greece has prepared young researchers from other Mediterranean states to manage bacterial plant diseases and to lower the risk of epidemics.

BIOGRAPHICAL NOTE

Dr. Ralf Koebnik is a research director at the bacterial plant pathogen laboratory of the *Institut de Recherche pour le Développement* in France.

He was trained in microbiology and genetics and obtained his PhD at the Eberhard Karls University in Tübingen, Germany. During his post-doctoral research period (Max Planck Institute for Biology, Tübingen, Germany; Biocenter Basel, Switzerland), he studied the structure, function, assembly and dynamics of bacterial outer membrane proteins. Twenty years ago, he decided to focus on molecular phytopathology, studying bacteria of the genus *Xanthomonas* as his favoured model system. After an assistant professorship at the Martin Luther University, Halle, Germany, he finally settled in Montpellier, France.

His current research interests include genomics and transcriptomics of bacterial plant pathogens, bacterial protein secretion systems, and novel approaches for molecular typing of bacteria. Recent work of his lab has focused on xanthomonads infecting rice, barley, cassava, cotton and banana. Combining molecular plant pathology, population genetics and plant genome engineering, he aims to develop durable resistant crops to the benefit of smallholder farmers in the southern hemisphere, a key target region for research activities of his institute.