Introduction

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The Plant–Microbial Interaction Conference that was held in Krakow in the beginning of July 2008 was an excellent opportunity for the presentation of new results and for the exchange of ideas on the progress in basic and applied science. Beneficial plant–microbial symbioses have been studied in relation to sustainable agricultural and forest systems, as well as environmental problems. A group of 130 researchers discussed plant–microbial interactions, trying to find common interests in studying the vast variety of interactions among bacteria, endophytic fungi, protists and others. Researchers were specializing either on below ground or above ground associations, and either on their nutritional or defensive role. It was possible to gain highly specialized knowledge, but still the dialogue is not efficient enough. Experiments including more than two or three symbionts are very rare. Molecular, genetic and evolutionary knowledge of more complicated systems may provide an extraordinary insight into ecosystem functioning and might

provide the strategy for substitution of chemicals by microbial inoculants. The key factor to this task is the selection/recombination of appropriate genotypes of different partners, selection of host genotypes and creation of complementary systems that are better suited for the given conditions. In this case the mycorrhizal fungi were not omitted, but special focus was given to the necessity to include the other types of symbiosis in mycorrhizal research.

The meeting was coined by the Phytochemical Society of Europe and was organized in cooperation with the Polish Academy of Sciences, the Jagiellonian University and the International Symbiosis Society. This special issue of *Phytochemical Review* includes a few papers that were presented during the meeting, covering subjects that are not only interesting but demand attention due to fast development of knowledge and their high importance in environmental and agricultural issues.

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