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Meeting report

3rd Conference of the European Foundation for Plant Pathology 'Environmental Biotic Factors in Integrated Plant Disease Control', Poznań, 5–9 September 1994

The conference was attended by 170 scientists from 20 countries from Europe and overseas (USA, India). Thirty-nine lectures and 110 posters were presented. The main topics presented and discussed at the Conference were: the role of fungi and bacteria in biological control, production and marketing of biopreparations, induced resistance of plants of diseases, and transgenic plants.

Saprophytic soil fungi may be applied at least in two different ways. They may be used as biocontrol agents for biopreparations, and for influencing (e.g. by cultural practices) soil fungal communities so that they suppress the growth of soil-borne pathogens and thus contribute to plant health.

The degree to which soil fungal communities suppress/support pathogenic fungi may be measured with the 'biotic series method'. Bacteria as biocontrol agents may, among other functions, contribute to better growth of plants and thus to better health. This would facilitate the registration procedure, as it is easier to register a new organic manure than a new biopreparation. Some of the plant growth-promoting rhizobacteria (PGPR) protecting plant roots, induce also resistance of leaves to viruses.

For large companies, the production and marketing of biopreparations is not profitable. Yet, they realize that it may be more so in the future, when the socio-economic factors will further restrict the application of chemical preparations in the environment.

Induced resistance to disease is and may be used in plant protection despite the lack of full understanding of its mechanism. The resistance results from treating plants with certain inducers: specific nonpathogenic organisms, week pathogens or their metabolites, or abiotic factors. Among the abiotic inducers, paraquat, a compound involved in oxygen radicals generation, was quoted. Other inducers of interest discussed were salicyclic acid, arachidonic acid and Ca. The analysed markers of immunization were mostly oxygen radicals, phenolic compounds and pathogen-related proteins (PR-proteins). The potential importance of a technological application of induced systemic resistance was emphasized. Such a technology may exploit the rapid expression of genes for resistance mechanisms, which are found also in susceptible plants. Immunized (sensibilisized) plants may react to infection with enhanced accumulation of phytoalexins, lignification and, but not always, induction of PR-proteins.

Immunization of plants may be an important technology complementary to chemical control or transgenic plants. The latter, so far being resistant to some viruses, may be immunized to gain resistance to some fungal pathogens, too.

Representatives of Monsanto Co. (St. Louis, USA) presented strategies for genetic modification of crop plants resulting in transgenic plants resistant to viruses, and potato resistant to the Colorada beetle. Currently, the most widely applied and effective technology for obtaining resistance to viruses has been the expression of virus coat protein genes in transgenic plants. The technology is not equally effective against all virus groups, and therefore a search is being conducted for new antisense mRNA, for which examples were shown.

The papers presented at the Conference will be published by The Polish Phytopathological Society in early 1995 in a book entitled 'Environmental biotic factors in integrated plant disease control'.

The 4th EFPP Conference will be held in 1996 in Münster, Germany, and its subject will be 'New technics in plant disease diagnostics'.

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