

IOBC Working group

Induced resistance in plants against insects and diseases

Convenor Annegret Schmitt
BBA Darmstadt, Germany

The IOBC Working group „Induced Resistance in plants against insects and diseases“ exists since 1999

Steering Committee:

Prof. Dr. Ian T. Baldwin,
Max Planck Institute for Chemical Ecology, Jena, Germany

Prof. Dr. Marcel Dicke,
Wageningen University, Wageningen, The Netherlands

Dr. Brigitte Mauch-Mani,
University Neuchatel, Neuchatel, Switzerland

Prof. Dr. Erkki Haukioja,
University of Turku, Turku, Finland

Dr. Annegret Schmitt,
Federal Biological Research Centre for Agriculture and Forestry,
Darmstadt, Germany

Main concern of the group

Foster exchange between researchers from all fields of induced resistance, i.e.

entomologists, plant pathologists, physiologists, molecular biologists, physisists etc.

on reactions that herbivore arthropods and plant pathogens induce in attacked plants

Activities to date

- 2001 Conference in Wageningen
The Netherlands
(120 participants, reported on last general assembly)
- 2004 Workshop in Delémont
Switzerland

Workshop in Delémont, 2004

„Methods in research on induced resistance and tolerance“

Local organiser

Brigitte Mauch-Mani



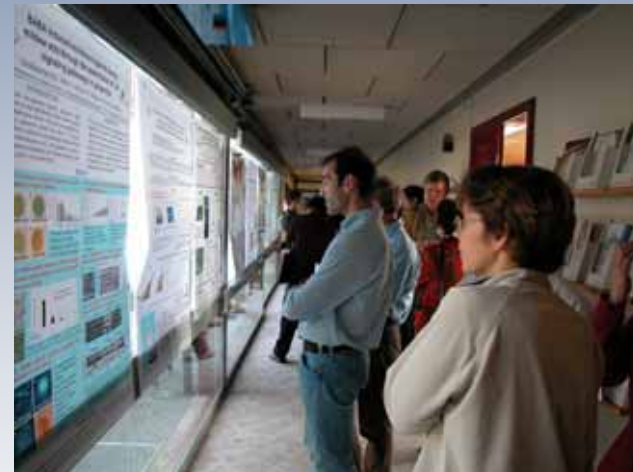
The workshop was used as platform

- to exchange methodological approaches
- to augment the understanding of the general and causal processes involved in induced defence reactions of plants against insects and plant pathogens
- to discuss their potential for practical plant protection

50 Participants from 12 countries (Europe, USA, Russia)



24 oral and 10 poster presentations



Presentations

- IR in different plant systems – e.g. Arabidopsis, tomato, cucumber, grapevine, sugar beet, corn, wheat, trees
- IR against different organisms – fungal and bacterial plant pathogens, insects
- Different inducers – chemicals, plant extracts, micro-organisms, insects
- Tritrophic interactions between insect pests – induced plants – predators/parasitoids
- Different methodological approaches – physiological, molecular, applied, physical

Discussion point: What is working, what is not and why?

- Why can results for efficacy of inducers often not be transferred from the greenhouse to the field?
 - level of induction already reached by UV or other stress
 - different stress path ways induced in the field, which might hinder induction of the pathway required
- Why do specific inducers only result in control of a certain disease in one plant, and not another disease in the same plant, although the induced defense reactions appear to be quite similar?
(Cucumber / downy and powdery mildew; BABA and Milsana)
 - comparable investigations envisaged

Excursion to CABI Bioscience



Future activities

- 2006 Conference in Heraklio, Crete, Greece
April 27-29 2006

„Breeding for inducible resistance against pests and diseases“

Joint meeting of IOBC groups

„Induced resistance“ and „Breeding for resistance“

Local hosts: Nikolaos Malathrakis
and Nikolaos Fanourakis,
TEI Heraklio



Topics

- Breeding for inducible resistance against pests and diseases
- Tools to study the associations of genotypes and phenotypes
- Mechanisms involved in induced and constitutive resistance
- Types of resistance important for breeders and possible contribution of IR
- Enhancing IR through biotechnology including use of priming and inducing agents, GMOs and selectable genetic markers
- Evolutionary aspects of plant resistance (aiding the development of deployment strategies for durable resistance within Integrated Crop Mananagement = ICM)

Future activities

- 2007 Conference in Utrecht
 The Netherlands

Joint meeting of IOBC group „Induced Resistance“ and the PR Protein- Group

Local hosts: Marcel Dicke,
University Wageningen
and Corné Pieterse, University Utrecht

