

IOBC / WPRS

Working group “Multitrophic Interactions in Soil”

Proceedings of the meeting

at

Dijon (France)

June 24-27, 2007

Edited by:

**Christian Steinberg, Véronique Edel-Hermann, Hanna Friberg,
Claude Alabouvette and Arno Tronsmo**

**IOBC wprs Bulletin
Bulletin OILB srop**

Vol. 42, 2009

The content of the contributions is in the responsibility of the authors

The IOBC/WPRS Bulletin is published by the International Organization for Biological and Integrated Control of Noxious Animals and Plants, West Palearctic Regional Section (IOBC/WPRS)

Le Bulletin OILB/SROP est publié par l'Organisation Internationale de Lutte Biologique et Intégrée contre les Animaux et les Plantes Nuisibles, section Regionale Ouest Paléarctique (OILB/SROP)

Copyright: IOBC/WPRS 2009

The Publication Commission of the IOBC/WPRS:

Horst Bathon
Julius Kühn-Institute (JKI)
Federal Research Center for Cultivated Plants
Institute for Biological Control
Heinrichstr. 243
D-64287 Darmstadt (Germany)
Tel +49 6151 407-225, Fax +49 6151 407-290
e-mail: horst.bathon@jki.bund.de

Luc Tirry
University of Gent
Laboratory of Agrozoology
Department of Crop Protection
Coupure Links 653
B-9000 Gent (Belgium)
Tel +32-9-2646152, Fax +32-9-2646239
e-mail: luc.tirry@ugent.be

Address General Secretariat:

Dr. Philippe C. Nicot
INRA – Unité de Pathologie Végétale
Domaine St Maurice - B.P. 94
F-84143 Montfavet Cedex (France)

ISBN 978-92-9067-216-6

www.iobc-wprs.org

Contents

| | |
|--|-------|
| Preface..... | i |
| List of participants..... | iii |
| Mechanisms involved in spatial and temporal mobility of disease patches caused by <i>Rhizoctonia solani</i> in sugar beet field: Induction of antagonists within disease patch <i>Muhammad Anees, Arne Tronsmo, Véronique Edel-Hermann, Nadine Gautheron, Christian Steinberg</i> | 1-5 |
| Take-all decline: An epidemiological analysis <i>Douglas Bailey, Nik Cunniffe, Philippe Lucas, Marie Gosme, Neil Paveley, John Spink, Christopher Gilligan</i> | 7-10 |
| <i>Pythium</i> elicitors in biological control of <i>Botrytis cinerea</i> <i>Kanak Bala, Dalia Rav David, Bernard Paul, Yigal Elad</i> | 11-14 |
| Population dynamics of beneficial microorganisms co-applied to seed during drum priming <i>Amanda J. Bennett, John M. Whipps</i> | 15-18 |
| Microbial analysis of soils from avocado crops modified by different organic amendments and its role in disease suppressiveness <i>Nuria Bonilla, Juan A. Torés, Alejandro Pérez-García, José M. Hermoso, Jorge Gonzalez, David Sarmiento, Francisco M. Cazorla, Antonio de Vicente</i> | 19-22 |
| Diversity of <i>Sclerotinia sclerotiorum</i> in the UK and variability in germination of sclerotia <i>John Clarkson, Emily Clewes, John Whipps</i> | 23-26 |
| Towards understanding the temporal dynamics of <i>Allium</i> white rot: factors affecting the infectivity of <i>Sclerotium cepivorum</i> sclerotia <i>John Clarkson, Anita Scruby, John Whipps</i> | 27-30 |
| Antagonistic ability of <i>Bacillus subtilis</i> strains against <i>Fusarium oxysporum</i> f.sp. <i>radicis lycopersici</i> <i>Constantinescu Florica, Voshol G.P., Validov Shamil, Bloemberg Guido</i> | 31-35 |
| Biodiversity and soil quality in agroecosystems: the use of a qualitative multi-attribute model <i>Jérôme Cortet, Marko Bohanec, Bryan Griffiths, Martin Žnidaršič, Marko Debeljak, Sandra Caul, Jacqueline Thompson, Paul H. Krogh</i> | 37-40 |
| Real-time PCR assay for identification and quantification of <i>Rhizoctonia solani</i> AG-2-2 in soil <i>Véronique Edel-Hermann, Marlène Jobard, Nadine Gautheron, Hanna Friberg, Christian Steinberg</i> | 41-46 |
| Effect of organic matter on soil inoculum potential and soil suppressiveness to <i>Gaeumannomyces graminis</i> var. <i>tritici</i> and <i>Rhizoctonia solani</i> <i>Léon Fayolle, Claude Alabouvette, J.M. Bodet, Christian Steinberg</i> | 47-51 |

| | |
|---|---------|
| Identification of a fungal population associated with soil suppressiveness to <i>Rhizoctonia solani</i> diseases in a biofumigated soil <i>Marie Fiers, Céline Janvier, Christian Steinberg, Véronique Edel-Hermann, François Villeneuve, Claude Alabouvette</i> | 53-56 |
| Interactions between bacteria and ectomycorrhizal fungi: what's new? <i>Pascale Frey-Klett, Aurélie Deveau, Mika Tarkka, Stéphane Uroz, Béatrice Palin, Jean-Claude Pierrat, Francis Martin, Jean Garbaye</i> | 57-61 |
| Response of <i>Rhizoctonia solani</i> to soil faunal grazing and organic amendments – different from general microbial dynamics <i>Hanna Friberg, Léon Fayolle, Véronique Edel-Hermann, Nadine Gautheron, Céline Faivre Christian Steinberg</i> | 63-67 |
| Synergy of <i>Brassica napus</i> green manure and <i>Trichoderma</i> seed treatment against <i>Sclerotium rolfsii</i> of sugar beet <i>Stefania Galletti, Pier Luigi Burzi, Eleonora Sala, Simona Marinello, Claudio Cerato</i> | 69-72 |
| Contribution of bacteria to the functional diversity of ectomycorrhizas in forest ecosystems <i>Jean Garbaye</i> | 73-76 |
| Differentially expressed genes during interactions in a fungistatic bacterial mixture <i>Paolina Garbeva and Wietse de Boer</i> | 77-81 |
| Induction of systemic resistance by PGPR, a suitable means to consider for managing of cucurbit powdery mildew <i>Laura García-Gutiérrez, Diego Romero, Houda Zerrouh, Francisco M. Cazorla, Antonio de Vicente, Alejandro Pérez-García</i> | 83-86 |
| Ecophysiological Influence of TerralytPlus® on electrochemical soil parameters <i>Hartmut Heilmann</i> | 87-90 |
| Trophic interactions between soil fungi and Collembola <i>Gloria Innocenti, Maria Agnese Sabatini, Sonia Ganassi, Matteo Montanari, Maria Barbara Branzanti</i> | 91-94 |
| Towards indicators of soil health <i>Céline Janvier, François Villeneuve, Véronique Edel-Hermann, Thierry Mateille, Claude Alabouvette, Christian Steinberg</i> | 95-100 |
| Spatial pattern and temporal dynamics of <i>Sclerotium</i> root rot (<i>Sclerotium rolfsii</i>) in fall sown sugar beet crops in southern Spain <i>Rafael Jordán-Ramírez, Rafael M. Jiménez-Díaz, Juan A. Navas-Cortés</i> | 101-103 |
| Biocontrol activity of <i>Collimonas fungivorans</i> against tomato foot and root rot caused by <i>Fusarium oxysporum</i> f. sp. <i>radicis-lycopersici</i> <i>Faina Kamilova, Johan Leveau, Ben Lugtenberg</i> | 105-108 |
| Implications of root spatial relationships in young wheat obtained from CT-scanning for an invasion by fungal pathogens <i>Adam Kleczkowski, Douglas J. Bailey, Wilfred Otten, Margaret Grose, Christopher A. Gilligan</i> | 109-112 |
| Phylogenetic analysis of endophytic <i>Fusarium oxysporum</i> strains inducing systemic resistance against the burrowing nematode <i>Radopholus similis</i> in banana <i>Andreas Kurtz, Alexander Schouten and Richard A. Sikora</i> | 113-118 |

| | |
|--|---------|
| Influence of Disease Resistant Management Strategies on Genetic and Pathogenic Diversity in Plant Pathogen Populations: Fusarium wilt of chickpea, a case study <i>Blanca B. Landa, M. Mar Jiménez-Gasco, and Rafael M. Jiménez-Díaz</i> | 119-122 |
| Compost performances in a turf system <i>Matteo Montanari, Gloria Innocenti, Sante Scagliarini</i> | 123-126 |
| Transformation of <i>Gnomonia fragariae</i> , the cause of strawberry root rot and petiole blight, with GFP gene and the study of host infection and colonization <i>Inga Moročko, Jamshid Fatehi</i> | 127-130 |
| Interconnectivity of habitats in soil: combining X-ray micro tomography and thin sectioning to reveal fungal-soil structure interactions <i>Wilfred Otten, Kirsty Binnie, Iain Young, Jonathan Villot, Dmitri Grinev</i> | 131-134 |
| Effect of <i>Glomus mosseae</i> BEG12, <i>Trichoderma viride</i> TV1 and <i>T. harzianum</i> T39 on plant growth of healthy and <i>Armillaria mellea</i> inoculated strawberry plants under greenhouse controlled conditions <i>Ilaria Pertot, Federica De Luca</i> | 135-138 |
| Agricultural practices affect microbial functional diversity, microbial activity and suppressiveness against soil-borne diseases <i>Michael Raviv, Ido Aviani, Yael Laor, Anat Yogev, Ibrahim Saadi, Rony Cohen, Shlomit Medina</i> | 139-144 |
| Consequences of liming on ectomycorrhizal community structure and functioning <i>François Rineau, Jean Garbaye</i> | 145-150 |
| Interaction between <i>Brassica carinata</i> seed meal and <i>Trichoderma</i> in soil infected by <i>Pythium ultimum</i> <i>Eleonora Sala, Stefania Galletti, Pier Luigi Burzi, Claudio Cerato</i> | 151-154 |
| Characterizing defense responses in banana induced by endophytic <i>Fusarium oxysporum</i> against the burrowing nematode <i>Radopholus similis</i> <i>Alexander Schouten, Kerstin Schäfer, Richard A. Sikora</i> | 155-158 |
| Biocontrol of root-knot nematodes by <i>Trichoderma</i> – modes of action <i>Edna Sharon, Ilan Chet, Meira Bar-Eyal, Yitzhak Spiegel</i> | 159-163 |
| Root exudates as important factor in the <i>Fusarium</i> – host plant interaction <i>Siegrid Steinkellner, Roswitha Mammeler, Horst Vierheilig</i> | 165-168 |
| Operalizing soil quality <i>Aad J. Termorshuizen, Peter van Erp, Renske Landeweert, Arjan Reijneveld, Roel Staps, Peter Veenhuizen, Petra C.J. van Vliet, Jos Wubben</i> | 169-172 |
| Saprotrophic basidiomycete <i>Hypholoma fasciculare</i> affects fungal and bacterial community composition in colonized wood and soil. <i>Vendula Valášková, Jaroslav Šnajdr, Pauline K. Gunnewiek, Wietse de Boer, Petr Baldrian</i> | 173-176 |
| Monitoring of pathogenic and nonpathogenic <i>Fusarium oxysporum</i> strains during tomato plant infection <i>Shamil Z. Validov, Faina D. Kamilova and Ben J.J. Lugtenberg</i> | 177-183 |
| Lignin enhances mycoparasitism of <i>Rhizoctonia solani</i> and <i>Botrytis cinerea</i> sclerotia <i>Sarah Van Beneden, Joachim Audenaert, Greet De Backer, Monica Höfte</i> | 185-190 |

| | |
|---|---------|
| Comparison of four tillage systems in organic farming. Effect of soil structure modification and organic matter repartition on microbial biomass and soil respiration <i>Jean François Vian, Joséphine Peigné, Rémi Chaussod and Jean-Roger Estrade</i> | 191-194 |
| Characterization of bacteriophages of <i>Verticillium</i> -antagonists originated from the strawberry rhizosphere <i>Arite Wolf, Sabine Schulze, Horst Neve</i> | 195-199 |
| Selection and partial characterisation of biofumigants for management of <i>Verticillium</i> wilt in strawberries <i>David Yohalem, David Hall</i> | 201-206 |