

Program and Abstracts



The 2nd Korea-Japan Joint Symposium

27-28 March 2012, Fukuoka International Congress Center,
Fukuoka, Japan



The Phytopathological Society of Japan
The Korean Society of Plant Pathology



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Organization

The Phytopathological Society of Japan

President Shigetou Namba (University of Tokyo)

The Korean Society of Plant Pathology

President Eun Woo Park (Seoul National University)

Organizing Committee

Shinji Tsuyumu (PSJ Chairperson of the Committee,

President 2008 of the PSJ, Shizuoka University)

Seung Hun Yu (KSPP Chairperson of the Committee,

President 2009 of the KSPP, Chungnam National University)

Tomonori Shiraishi (President 2009 of the PSJ, Okayama University)

Hideo Ishii (National Institute for Agro-Environmental Sciences, Japan)

Takashi Hirooka (Nihon Nohyaku Co., Ltd.)

Keiko Natsuaki (Tokyo University of Agriculture)

Yuki Ichinose (Okayama University)

Kazuya Akimitsu (Kagawa University)

Local Organizing Committee

Kenichi Tsuchiya (Head of Local Organizing Committee, Kyushu University)

Naruto Furuya (Kyushu University)

Masaru Matsumoto (Kyushu University)

Minoru Takeshita (Kyushu University)

The Phytopathological Society of Japan

The Korean Society of Plant Pathology

Program of the Symposium

March 27 (Tuesday), 2012

9:00-10:00 Registration (Entrance Lobby on 1st floor)

10:00-10:30 OPENING CEREMONY (Room 501 on 5th floor)

Welcoming Remarks

Shigetou Namba (University of Tokyo)

PSJ President

Congratulatory Remarks

Eun Woo Park (Seoul National University)

KSPP President

Opening Remarks

Seung Hun Yu, (Chungnam National University)

Former KSPP President

Opening Address

Shinji Tsuyumu, (Shizuoka University)

Former PSJ President

10:30-11:50 PLENARY LECTURES (Room 501)

Chair: Shinji Tsuyumu (Shizuoka University)

10:30-11:10 Ingyu Hwang (Seoul National University):
Social behavior of *Burkholderia glumae*.

Chair: Key-Woon Lee (Kyungpook National University)

11:10~11:50 Ichiro Uyeda (Hokkaido University):
Recessive resistance against viral infection

11:50~13:30 LUNCH

Program of the Symposium

13:30~15:30 SYMPOSIUM CONCURRENT SESSIONS

Session 1: Emerging New Diseases (Room 409 on 4th floor)

**Chair: Peter Palukaitis (Seoul Woman's University) and
Keiko T. Natsuaki (Tokyo University of Agriculture)**

- 13:30~13:50 Kensaku Maejima and Shigetou Namba (University of Tokyo):
Emergence of plum pox disease in Japan: a pandemic aphid-borne virus
disease of stone fruits
- 13:50~14:10 Ho-Jong Ju and Joojin Jeong (Chonbuk National University):
Emerging and reemerging viral diseases of plants
- 14:10~14:30 Akira Kawaguchi (Okayama Prefectural Technology Center for
Agriculture, Forestry and Fisheries):
Epidemiological study of tomato bacterial canker in greenhouses in Japan
- 14:30~14:45 Coffee Break

**Chair: Young Ho Kim (Seoul National University) and
Keiko T. Natsuaki (Tokyo University of Agriculture)**

- 14:45~15:05 Sunggi Heu (Rural Development Administration, Korea):
Climate change effects on the bacterial disease in Korea
- 15:05~15:25 Tooru Iwanami (NARO Institute of Fruit Tree Science, Japan):
Citrus greening disease
- 15:25~15:45 Kyu-Ock Yim (Animal, Plant and Fisheries Quarantine
and Inspection Agency, Korea):
Legislative management for new emerging pests

Session 2: New Control Measures: Both Chemical and Biological (Room 502)

Chair: Hideo Ishii (National Institute for Agro-Environmental Sciences, Japan)

- 13:30~13:50 Hiroshi Hamamura (Nippon Soda):
The progress of thiophanate-methyl in the world
- 13:50~14:10 Akihiro Moriwaki (Kumiai Chemical Industry):
Development and characteristics of a novel eco-friendly fungicide,
CleanCup[®]

14:10~14:30 Hiroyuki Hadano (Bayer CropScience):
New SDHI fungicides

14:30~14:45 Coffee Break

Chair: Young Ryun Chung (Gyeongsang National University)

14:45~15:05 Choong-Min Ryu (Korea Research Institute of Bioscience and
Biotechnology):
A brief history in the development of biological control agents in Korea

15:05~15:25 Se-Weon Lee (National Academy of Agricultural Science, Korea):
Current status of rice bakanae disease control in Korea

15:25~15:45 Heung-Tae Kim (Chungbuk National University):
Quantitative sequencing method for monitoring the sensitivity to the
mixture of carbendazim and diethofencarb

Session 3: Molecular Mechanisms of Pathogenicity and Resistance (Room 503)

Chair: Yuki Ichinose (Okayama University) and Seon-Woo Lee (Dong-A University)

13:30~13:50 Jae-Soon Cha (Chungbuk National University):
Virulence regulation by RpfS and their downstream genes in *Xanthomonas*
oryzae pv. *oryzae*

13:50~14:10 Yasufumi Hikichi (Kochi University):
Global regulation of pathogenicity mechanism of *Ralstonia solanacearum*

Chair: Seon-Woo Lee (Dong-A University) and Kazuya Akimitsu (Kagawa University)

14:10~14:30 Nam-Soo Jwa (Sejong University):
Characterization of molecular interactions between *Magnaporthe oryzae*
and *Oryza sativa*

14:30~14:45 Coffee Break

14:45~15:05 Yasuyuki Kubo (Kyoto Prefectural University):
Pathogenesis and infection structure formation of *Colletotrichum orbiculare*

Chair: Kazuya Akimitsu (Kagawa University) and Ki Deok Kim (Korea University)

15:05~15:25 Ki Hyun Ryu (Seoul Woman's University):
Pepper Mottle Virus and applications of PepMoV clone

15:25~15:45 Chikara Masuta (Hokkaido University):
Virus-induced necrosis is a consequence of direct protein-protein
interaction between a viral RNA silencing suppressor and a host catalase

Program of the Symposium

March 27 (Tuesday), 2012

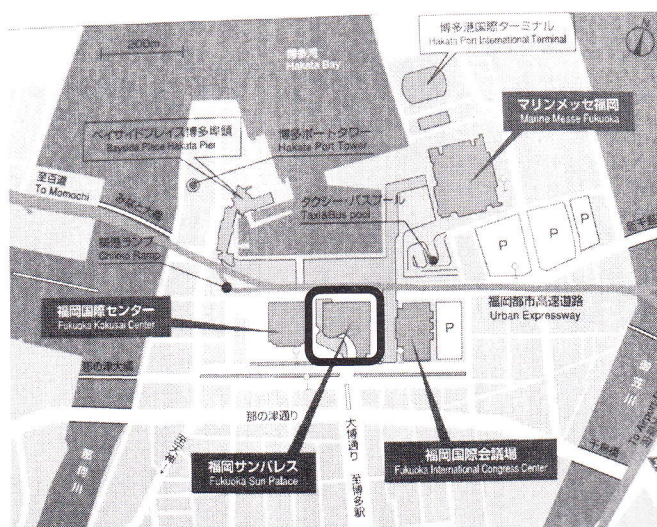
15: 45 ~17:45 POSTER SESSION (Foyer on 5th floor)

Information of respective poster sessions

Session A	Bacteriology and bacterial diseases
Session B	Biological control
Session C	Chemical control
Session D	Diagnosis
Session E	Disease management
Session F	Disease resistance
Session G	Epidemiology
Session H	Molecular plant-microbe interactions
Session I	Mycology and fungal diseases
Session J	Virology and virus diseases
Session K	Nematology
Session L	Tree and forest diseases
Session M	Others

18:30~21:00 SOCIAL MIXER

A Social Mixer is planned for all participants at **Palace room (2F) in Fukuoka Sunpalace**. The participation fee is 4,000 Japanese Yen (students, 3,000 Yen) and includes light meal and drinks. Other details will be announced at the registration desk on site.



severely reduced. Genetic complementation of this mutant with a 7.9-kb fragment containing *aroC* restored virulence, pigmentation, and prototrophy. These results suggest that the *aroC* gene plays a crucial role in the growth, attenuation of virulence, and pigment production of *X. oryzae* pv. *oryzae*.

A-15

Involvement of pectate lyase and *hrp* of *Pseudomonas viridiflava* in its virulence on lettuce

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Causal agents of bacterial rot of lettuce are *Pseudomonas cichorii* and *P. viridiflava*. Our previous studies showed that the development of disease symptoms is closely associated with apoptotic programmed cell death of the *P. cichorii*-infected lettuce leaves, and that pectate lyase (*pel*) and *hrp* genes are not involved in virulence of *P. cichorii* on lettuce. Some strains of *P. viridiflava* possess the tripartite structure of the PAI found in *P. syringae* (T-PAI), whereas other strains have a single-component (S-PAI) containing only the conserved *hrp/hrc* gene cluster. The T- and S-PAI occupy different chromosomal locations; however, only one or the other PAI is present in an individual strain. Nucleotide sequences of the *hrp* genes of *P. cichorii* are homologous to those of S-PAI of *P. viridiflava*. To elucidate virulence mechanism of *P. viridiflava* strain Pv9504 (Pv9504), possessing the S-PAI, a *pel*-mutant and a *hrcC*-mutant from Pv9504 were created. Both mutants reduced their virulence on lettuce. Furthermore, a *pel/hrcC*-mutant also reduced its virulence on lettuce, indicating requirement of *pel* and *hrp* genes for virulence of Pv9504 on lettuce. In lettuce leaves inoculated with Pv9504, cell death was first induced 6 h post-inoculation (HPI), increasing until 12 HPI. Induction of cell death of lettuce leaves inoculated with the *pel*-mutant and *hrcC*-mutant delayed, compared with that with Pv9504. The *pel/hrcC* mutant did not induce cell death, suggesting that *pel* and *hrp* is essential for induction of cell death of Pv9504-infected lettuce leaves. Co-infiltration of cycloheximide, an inhibitor of protein synthesis in eukaryotic cells, with Pv9504 into lettuce leaves resulted in an inhibition of cell death but not the disease development. On the other hand, DEVD, an inhibitor of caspase III, strongly inhibited both cell death and the disease development in lettuce leaves inoculated with Pv9504. These results demonstrated that the disease development on lettuce leaves inoculated with Pv9504 is dependently on caspase III but not *de novo* protein

synthesis-relating cell death of lettuce leaves induced by infection with Pv9504. Furthermore, treatment with DEVD resulted in inhibition on cell death induced by the *hrcC*-mutant but not the *pel*-mutant. These results suggest that *pel* but not the *hrp* may be involved in induction of cell death required for the disease development in lettuce leaves infected with Pv9504.

A-16

Diversity of *Pectobacterium* strains isolated from various plants in Japan

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A taxonomic investigation was performed on twenty six representative Japanese *Pectobacterium* (= *Erwinia carotovora*) strains using biochemical and molecular techniques. Based on *recA* and *mdh* sequence analysis, the strains were divided into 7 clades (I - VII); I. *P. carotovorum* ssp. *carotovorum* (from chinese cabbage, potato and tomato), II. ssp. *odoriferum* (from lettuce), III. an assumed ssp. *brasiliensis* (from potato, eggplant and tomato), IV. a suspected new subspecies level clade of *P. carotovorum* (from wasabi), V. *P. atrosepticum* (from potato), VI. *P. wasabiae* (from wasabi) and VII. an unnamed new species level clade (from taro). All members of clade III gave positive result on indole test. Using specific primers for *P. viridiverticillatus* (Rbf and Lbf), the clade III strains produced an amplicon at 322 bp but none from the strains of other clades.

A-17

Pathogenesis of *Xanthomonas axonopodis* pv. *citri* isolated from ripened or un-ripened Unshu mandarin fruits infected by citrus canker

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Citrus canker caused by *Xanthomonas axonopodis* pv. *citri* is one of the most important diseases in the