A new rapid identification method for Japanese Pectobacterium strains based on recA, mdh and rpoD PCR RFLP

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August 25–30,
Beijing, China

Bio-security, Food Safety and Plant Pathology

ABSTRACTS

10th International Congress of Plant Pathology

中国植物病理学会
Chinese Society for Plant Pathology

The Chinese Society for Plant Pathology

The Chinese Society for Plant Pathology (CSPP) is an academic organization devoting itself to the research and extension of the field of plant pathology in China. The society was established to promote the development of plant pathology in 1929. Over the years, the organization has grown into a national first-class society, with 14 professional committees, five working committees, 26 local committees and more than 6,500 members from China and abroad. The CSPP became a member of the International Society for Plant Pathology in 1983, and is one of the fundamental members of the Asian Association of Societies for Plant Pathology. It's headquarter is located in the campus of China Agricultural University.

The CSPP annual meeting and other national symposiums are regularly sponsored by CSPP or its professional committees. About 1,000 participants including oversea members attend these meetings, present their recent research achievements, learn about the latest advances in related research areas, and meet with colleagues to promote national and international communication. The CSPP journal "Acta Phytopathologica Sinica" was initiated in 1955. The Journal publishes bimonthly in Chinese or English, covering fundamental and application aspects of plant pathology. As an indicator of the academic level of CSPP, "Acta Phytopathologica Sinica" is one of the most highly rated academic journals in China.

CSPP has carried out a great deal of application research related to the prevention of plant diseases. CSPP maintains a close tie with agricultural producers by offering national and international trainings in the application of new techniques and providing services through agricultural extension. All these measures taken have popularized the knowledge of plant pathology, tightened the connection between theory and practice, and accelerated the development of agriculture in China.

The scientific development of plant pathology is the main concern of CSPP. After successfully sponsored the First Asian Plant Pathology Conference in Beijing in 2000 and co-organized the 15th International Plant Protection Congress in 2004, CSPP has now totally prepared itself for the ICPP in 2013.

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ICPP 2013
10th International Congress of Plant Pathology

ABSTRACTS

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FOREWORD

Meeting the demands of growing global population, reducing loss of crop productivity is essential for long term food security. Plant diseases reduce the production and quality of food, fibre and biofuel crops. Plant pathology contributes tremendously to plant disease control, at pre- and post-harvest stages in agricultural production systems.

The Organizing Committee of the 10th International Congress of Plant Pathology (ICPP2013) strengthened the main theme "Bio-security, Food Safety and plant pathology in a Globalized Economy" by developing its scientific programme into 2 plenary sessions, 5 keynote sessions and 66 concurrent sessions. ICPP2013 also emphasized on the ISPP's initiative on Global Food Security with an evening session on "1 Billion Hungry People: What Can We Do?" in addition to the plenary session on "Can We Improve Global Food Security?" This proceeding contains 1591 abstracts of offered papers that are to be presented at ICPP2013.

The very considerable efforts of people involved in developing the ICPP 2013 programme and the ICPP 2013 abstract publication are commended and acknowledged. The ICPP2013 Scientific Programme Committee planned the programme, and numerous concurrent session organizers, noted in the ICPP2013 programme, helped identify paper presenters for the plenary, keynote and concurrent sessions. Many of my colleagues contributed to editing all the abstracts with incredible patience and compiling the Abstract publications. A group of teachers and students at the department of plant pathology, China Agricultural University, have provided substantial assistance for the preparation for ICPP2013.

ICPP2013 is highly expected to be a successful and worthy successor to previous International Congresses of Plant Pathology. All contributors of offer papers have played an important part in this success. I extend my best wishes to all ICPP2013 delegates for a successful and worthwhile time in China.

You-Liang Peng

Chairperson, ICPP2013 Organising Committee
Vice-President, International Society for Plant Pathology
Professor of Plant Pathology, China Agricultural University

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P40.001 Classification of *Pseudomonas syringae* strains isolated from bacterial leaf spot of onions

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Bacterial leaf spot of onions (BLSO) was first recorded in Japan by Goto in1972 and the pathogen was considered as a pathovar of *Pseudomonas syringae*, but it has not been taxonomically investigated in detail. In 2012, a disease suspected as BLSO re-emerged in Shizuoka, Japan. A pathogenic bacterium was isolated from the infected onions and suggested to be BLSO agent through preliminary examinations. The strains isolated in 1969, 1986, 1987 and 2012 were compared with the causal agent of bacteriosis of leeks (*P. syringae* pv. *porri*) that shows similar symptoms with BLSO. Rep-PCR distinguished the BLSO agent and pv. *porri*. The sequence analysis of housekeeping genes and *hrp* genes revealed that the BLSO agent and pv. *porri* formed independent clusters. In bacteriological characteristics, difference was observed in utilization of erythritol, DL-homoserine, glutaric acid and others between the BLSO agent and pv. *porri*. In pathogenicity tests, welsh onion, leek, garlic and Chinese chive showed different symptoms by the two organisms. In conclusion, BLSO agent is clearly distinguished from pv. *porri* and considered to be a new pathovar of *P. syringae*.

P40.002 A new rapid identification method for Japanese *Pectobacterium* strains based on *recA*, *mdh and rpoD* PCR RFLP

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Identification was performed on 189 Japanese *Pectobacterium* strains of MAFF collection isolated from Crucifers and Solanaceous plants using sequence analysis of *recA, mdh, gyrB, rpoD* and PCR RFLP of *recA*, *mdh* and *rpoD*. Using *recA*, *mdh* and *rpoD* PCR RFLP each species and subspecies group of Japanese *Pectobacterium* strains can be easily distinguished. The results of *recA*, *mdh* and *rpoD* PCR RFLP was easy to analyze and corresponded to the result of *recA*, *mdh*, *gyrB* and *rpoD* sequence analysis. Using those methods, the investigated Japanese *Pectobacterium* strains were divided into *P. carotovorum* subsp. *carotovorum*, subsp. *odoriferum*, subsp. *brasiliense*, new subsp. level group of *P. carotovorum*, *P. atrosepticum* and *P. wasabiae*. Here we also found a group that may constitute a new species level group of *Pectobacterium*. This *recA*, *mdh* and *rpoD* PCR RFLP can be potentially used as rapid method for identification of *Pectobacterium* strains.

N40.001 Identification of race and biovar of *Ralstonia solanacearum* from tobacco in Jiangxi province

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In order to provide theoretical basis for breeding and utilizing tobacco bacterial wilt-resistant varieties, race and biovar of *Ralstonia solanacearum* from tobacco in Jiangxi province were identified. Diseased plant samples of tobacco bacterial wilt were collected from six counties of Shicheng, Ruijin, Huichang, Xinfeng, Guangchang and Xiajiang in Jiangxi province, and 24 strains of the pathogen, *Ralstonia solanacearum*, were obtained from these samples by using dilution plate isolation method. Six representative strains of them were chosen for race and biovar determination. Experimental results of differential host assay, infiltration reaction and melanin formation showed that all of the six strains belonged to race 1, and on the basis of their capacity in utilizing three disaccharides and three hexanol, as well as their reduction ability to KNO_3, the six strains were also classified as bioval Ⅲ-1.

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