

ABSTRACT

DETERMINATION of BACTERIAL DISEASES on PEA GROWING AREAS of AYDIN and IZMIR PROVINCES

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The study has been conducted to investigate the presence of bacterial diseases of pea and to determine races of *Pseudomonas syringae* pv. *psii* (*Psp*) on the pea growing areas of Torbalı, Tire, Ödemiş counties in İzmir province and Nazilli, Çine, Buharkent counties in Aydın province. During 2009 and 2010, pea plant samples exhibiting water-soaked, browning and fan like necrotic lesions on stem, leaves and capsules were collected from 40 fields in İzmir and 15 fields in Aydın provinces. Bacteria were isolated on King's medium B (KB), purified and stored at -80°C for further identification. A total of 47 bacterial isolates were tested for presumptive diagnosis by using fluorescence on KB medium, KOH solubility and LOPAT (production of levan, oxidase, potato soft rot, arginine dihydrolase, hypersensitive reaction on tobacco) tests. Pathogenicity and virulence tests were performed in potted pea plants cv. Bolero, Geneva and Kelvedon Wonder, respectively. All 47 isolates were tested for further identification by using biochemical, serological and 16S rDNA sequence analysis. All *Psp* strains were also characterized based on differential pathogenicity on 8 pea cultivars. The isolates were only differentiated by utilization of some carbon sources (D-xylose, D-mannitol, D-maltose, D-sorbitol, erythritol, trehalose, L-tartaric acid and lactic acid), gelatin liquefaction, hydrolysis of aesculin, ice nucleation activity and homoserine utilization. ELISA and IFAS tests were applied by using commercial polyclonal antibody (Neogen Europe, UK) and rabbit antibody produced against heat-killed cells of *Psp* (strain Bz4 and NCPPB-2585). As a result, 46 isolates were identified as *Psp* and divided into three races (race 2, 4 and 5). Race 2 was found to be widespread in the survey area. One bacterial isolate was identified as *Pseudomonas viridiflava*. This is the first report of *P. viridiflava* causing a disease of pea, and the presence of three races of *Psp* in Turkey.

Key Words: Bacterial Blight, *Pseudomonas syringae* pv. *psii*, *Pseudomonas viridiflava*, pea