DISEASE NOTE

BACTERIAL SOFT ROT OF EGGPLANT CAUSED BY PECTOBACTERIUM CAROTOVORUM subsp. CAROTOVORUM IN CHINA


1 College of Plant Protection, Shenyang Agricultural University, Shenyang 110866, China
2 Institute of Plant Protection, Liaoning Academy of Agricultural Sciences, Shenyang 110161, China

In December 2016, soft rot lesions on the stem and fruit of eggplants cv. Green Beauty were noted in greenhouses in Anshan, Liaoning Province, China. Disease incidence was estimated at 5-10% and resulted in a substantial yield reduction. Symptoms appeared as soft, dark green stem lesions that progressively turned brown with vascular bundle necrosis appearing. Fruits of infected plants initially had small water-soaked lesions that rapidly enlarged with a watery ooze. Infected tissues from stems and fruits of eggplant were macerated in sterile water, streaked onto nutrient agar (NA) and incubated at 28°C for 2 days. The resultant bacterial colonies were round, translucent, white, convex with smooth edges. All isolated bacteria were gram-negative rods, facultative anaerobes, non-fluorescent on King’s B media, produced acid from α-methyl glucoside, were negative for sucrose reduction, sensitive to erythromycin (50 μg/ml), positive hypersensitive response in tobacco plants. All were negative for pectolytic activity forming strains on CVP were facultative anaerobic with pectinolytic ability on potato tuber slices, grew at 37°C, produced acid from α-methyl glucoside, were negative for producing indole and reducing substances from sucrose. The sequence of 1400 bp of 16S rDNA gene (Weisburg et al., 1991) of strain BTC2 (GenBank accession No. MF314823) showed 99% identity to P. carotovorum subsp. carotovorum strain ICMP 13550 (KY446059). Further confirmation of strain BTC2 was done with a 713 bp recA gene sequence (Waleron et al., 2013) (MF314822), which showed 99% similarity to P. carotovorum subsp. carotovorum strains in GenBank. Phylogenetic analysis based on 16S rDNA and recA sequences grouped our strain in the same cluster together with type strain ATCC 15713T and respective P. carotovorum subsp. carotovorum strains derived from GenBank. Pathogenicity was performed on cabbage plants (cv. Beyaz Bursa) by inoculation of 10 μl of suspension (10^8 cfu ml⁻¹) using a syringe and hypodermic needle at the leaf axil. Inoculated plants were incubated in humid conditions at 28°C. Inky-black lesions and slimy decay developed within 72 h. Symptoms appeared as soft, dark green stem lesions that progressively turned brown with vascular bundle necrosis appearing. Fruits of infected plants initially had small water-soaked lesions that rapidly enlarged with a watery ooze. Infected tissues from stems and fruits of eggplant were macerated in sterile water, streaked onto nutrient agar (NA) and incubated at 28°C for 2 days. The resultant bacterial colonies were round, translucent, white, convex with smooth edges. All isolated bacteria were gram-negative rods, facultative anaerobes, non-fluorescent on King’s B media, produced acid from α-methyl glucoside, were negative for producing indole and reducing substances from sucrose. The sequence of 1400 bp of 16S rDNA gene (Weisburg et al., 1991) of strain BTC2 (GenBank accession No. MF314823) showed 99% identity to P. carotovorum subsp. carotovorum strain ICMP 13550 (KY446059). Further confirmation of strain BTC2 was done with a 713 bp recA gene sequence (Waleron et al., 2013) (MF314822), which showed 99% similarity to P. carotovorum subsp. carotovorum strains in GenBank. Phylogenetic analysis based on 16S rDNA and recA sequences grouped our strain in the same cluster together with type strain ATCC 15713T and respective P. carotovorum subsp. carotovorum strains derived from GenBank. Pathogenicity was performed on cabbage plants (cv. Beyaz Bursa) by inoculation of 10 μl of suspension (10^8 cfu ml⁻¹) using a syringe and hypodermic needle at the leaf axil. Inoculated plants were incubated in humid conditions at 28°C. Inky-black lesions and slimy decay developed within 72 h. To our knowledge, this is the first report of P. carotovorum subsp. carotovorum causing soft rot of white head cabbage in Turkey.

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Corresponding author: H.M. Aksoy
E-mail: hmaksoy@omu.edu.tr
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DISEASE NOTE

FIRST REPORT OF PECTOBACTERIUM CAROTOVORUM subsp. CAROTOVORUM CAUSING SOFT ROT ON WHITE HEAD CABBAGE IN TURKEY

H.M. Aksoy, M. Ozturk and A. Aktas

Department of Plant Protection, Faculty of Agriculture, Ondokuz Mayis University, Samsun, Turkey

In October of 2016, soft rotted tissue on white head cabbage (Brassica oleracea L. var. capitata subvar. Alba) were observed in commercial fields of Samsun province. Infected tissue was macerated in Bioreba extraction bags and extract was plated on Crystal Violet Pectate (CVP) medium. Cavity forming strains on CVP were facultative anaerobic with pectinolytic ability on potato tuber slices, grew at 37°C, produced acid from α-methyl glucoside, were negative for producing indole and reducing substances from sucrose. The sequence of 1400 bp of 16S rDNA gene (Weisburg et al., 1991) of strain BTC2 (GenBank accession No. MF314823) showed 99% identity to P. carotovorum subsp. carotovorum strain ICMP 13550 (KY446059). Further confirmation of strain BTC2 was done with a 713 bp recA gene sequence (Waleron et al., 2013) (MF314822), which showed 99% similarity to P. carotovorum subsp. carotovorum strains in GenBank. Phylogenetic analysis based on 16S rDNA and recA sequences grouped our strain in the same cluster together with type strain ATCC 15713T and respective P. carotovorum subsp. carotovorum strains derived from GenBank. Pathogenicity was performed on cabbage plants (cv. Beyaz Bursa) by inoculation of 10 μl of suspension (10^8 cfu ml⁻¹) using a syringe and hypodermic needle at the leaf axil. Inoculated plants were incubated in humid conditions at 28°C. Inky-black lesions and slimy decay developed within 72 h. To our knowledge, this is the first report of P. carotovorum subsp. carotovorum causing soft rot of white head cabbage in Turkey.

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Corresponding author: H.M. Aksoy
E-mail: hmaksoy@omu.edu.tr
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