DISEASE NOTE

OUTBREAKS OF PEPPER MILD MOTTLE VIRUS IN GREENHOUSES IN SANLIURFA, TURKEY

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The tobamovirus *Pepper mild mottle virus* (PMMoV) was first identified in Turkey in 1994 in fields of commercial pepper (*Capsicum annuum*) (Guldur, *et al.*, 1994; Palloix *et al.*, 1994). There was no evidence of its presence in the southeastern Anatolian province of the country until, in February 2006, very severe symptoms were observed in greenhouse-grown peppers of cv Charlee in the vicinity of Sanliurfa. Plants were stunted, had mottled, puckered, and malformed leaves and bore fruits that were small, deformed and marked by off-colored sunken areas. Disease incidence ranged from 60 to 95 % and resulted in a 75 to 95% yield loss. Fruit and leaf tissues from several plants were tested by ELISA using commercial kits for PMMoV, *Cucumber mosaic virus* (CMV), *Potato virus Y* (PVY), *Tobacco mosaic virus* (TMV), *Tomato spotted wilt virus* (TSWV) (Loewe Phytodiagnostica Biochemica, Sauerlach, Germany), and *Tobacco etch virus* (TEV) (Agdia Incorparated, USA). Of 42 symptomatic samples from five greenhouses, all gave a positive result for PMMoV but no reaction for the other viruses tested. Seed samples from twelve pepper plants (25 seeds from each infected plant) also gave consistently positive ELISA result for PMMoV. Seeds from symptomatic ELISA-positive plants were individually planted in pots containing an autoclaved commercial soil-less mix:horticultural sand (1:1) in a greenhouse at 25°C. Of 120 seedlings tested for PMMoV 34 were positive, confirming transmission through seed. Mechanical inoculation of several healthy seedlings of cv Charlee peppers with sap extracted from symptomatic leaves and fruit resulted in 100% infections as determined by symptom observation and ELISA tests. This record, the first of PMMoV in southeastern Anatolia, appears to be particularly threatening because of the environment (greenhouses) in which the outbreak developed and the high rates of seed transmission of PMMoV.

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FIRST REPORT OF BACTERIAL BLIGHT OF HAZELNUT CAUSED BY *XANTHOMONAS ARBORICOLA* pv. *CORYLINA* IN IRAN

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A severe disease of hazelnut (*Corylus avellana*) was observed in 2004 in orchards of the Guilan province (Rahim-Abad of Roudsar and Amlash) of Iran. Water-soaked spots were present on the leaves, that later whithered and dessicated, and on the shoots, which soon expanded into dark brown to black strip-like lesions (Scortichini *et al.,* 2002). Extracts (100 µl) from symptomatic tissues crushed in peptone water were plated on NA and YDC media containing cycloheximide (50 µg.MI^{-1}). Bacterial colonies that developed within 48 to 72 h were yellow on YDC medium or mucoid and convex on NAS medium. All of 32 selected isolates were rod-shaped, obligate aerobic, gram negative, oxidase, indole, and pectinase negative, H_2S, catalase, and levan positive. In addition, they were ice-nucleation negative, caused hypersensitive reaction on tobacco and pepper leaves, and hydrolysed starch, gelatin, and aesculin. All isolates used arabinose, glucose, trehalose, cellobiose, glycerol, galactose, and sucrose as carbon sources but none of them utilized rhamnose, lactose, rafinose, mannitol, and sorbitol. Pathogenicity tests were done by inoculating leaves, fruits and 1-year-old twigs of healthy hazelnut plants with suspensions of 10^8 CFU/ml of each isolate (Gardan and Devaux, 1987). Inoculated plants and the controls inoculated with sterile water were maintained in a greenhouse at 25 to 28°_. Within 14 to 21 days, necrotic spots developed on the leaves and fruits of inoculated plants but not in the controls. The pathogen was reisolated from lesions of inoculated plants. Based on the results of the above mentioned tests the bacterium recovered from diseased hazelnuts was identified as *Xanthomonas arboricola* pv. *corylina.* This is the first report of bacterial blight of hazelnut in Iran.

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