

## DISEASE NOTE

**OCCURRENCE OF BLACK ROT CAUSED  
BY *XANTHOMONAS CAMPESTRIS* PV.  
*CAMPESTRIS* ON ORNAMENTAL  
KALE IN ITALY**

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In March 2000, V-shaped yellow lesions were observed at the leaf margins of ornamental kale (*Brassica oleracea* subsp. *acephala*) grown as borders in public gardens in Perugia (Italy). The lesions, only found on basal leaves, sometimes reached the main leaf vein, and the veins in the lesions appeared black. From diseased leaves we consistently isolated smooth, yellow, raised bacterial colonies on nutrient agar. For pathogenicity tests, ornamental kale plants (cv. Sekito) were water-congested by placing them in clear polyethylene bags 12 h before inoculation, then airbrush sprayed with bacterial suspensions of six isolates ( $10^8$  cfu ml<sup>-1</sup>) and kept in a greenhouse at 18-25°C, at 50-75% relative humidity, with natural lighting. The plants were covered with polyethylene bags for the first 24 h. About 10 days after the inoculation, typical symptoms resembling the natural ones were observed. The bacterium was consistently re-isolated from these plants. All the bacterial isolates were gram-negative, aerobic, catalase-positive, and oxidase- and urease-negative. They hydrolyzed esculin, gelatin, casein and starch, grew at 35°C, produced acid from arabinose, glucose, and mannose and produced hydrogen sulfide from cysteine. Based on these biochemical, physiological, nutritional and pathogenicity tests, it was concluded that the bacterial isolates from ornamental kale belonged to *Xanthomonas campestris* pv. *campestris* (Pammel) Dowson.

This appears to be the first report of black rot on ornamental kale, caused by *X. campestris* pv. *campestris*, in Italy. The disease was previously described in the U.S.A. (Whipker *et al.*, 1998).

Whipker B.E., Gibson J.L., Cloyd R.A., Campbell C.R., Jones R., 1998. Horticulture Information Leaflet 507, New 12/98. North Carolina Cooperative Extension Service: 5-9.

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## DISEASE NOTE

**FIRST REPORT OF ROOT ROT  
OF LETTUCE CAUSED BY  
*PHYTOPHTHORA CRYPTOGEA*  
IN BELGIUM**

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In January 1998, lettuce plants (*Lactuca sativa* L. cv. Lollo Bionda) growing in a 0.8 ha hydroponic greenhouse at Kessel (Belgium) showed severe root and basal stem rot symptoms. Plant growth was reduced, and the incidence of wilted or dead plants was high. During preliminary microscopic examinations, an Oomycetous fungus was observed on the infected tissues. Therefore, surface-disinfected root and stem pieces were placed onto selective P10 medium (Pittis and Colhoun, 1984) to isolate the causal agent. All isolates, recovered from selective media, developed coenocytic and uneven hyphae forming white, uniform and fluffy colonies on V8 agar medium at 22°C. The cultures produced noncaducous, nonpapillate and oval to obpyriform sporangia with rounded bases in Petri's solution. Internal proliferation of sporangia and hyphal swellings could also be observed. Chlamydozoospores and sexual organs were not detected in solid or liquid cultures. All isolates, the identity of which was confirmed by H. van Kesteren (Diagnostic Centre of the Plant Protection Service, Wageningen, The Netherlands), were identified as *Phytophthora cryptogea* Pethybr. & Lafferty. During an artificial inoculation test a one-week-old agar culture was submerged into the nutrient solution of hydroponically-grown two-week-old seedlings cvs. Lollo Bionda and Lollo Rosa. Sporangia and zoospores were detected in the nutrient solution within 1 day, while root and stem decay, similar to the decay observed on naturally infected plants, appeared within a week; cv. Lollo Bionda was more susceptible than cv. Lollo Rosa. The pathogen was readily re-isolated from infected tissues of inoculated plants, but not from non-inoculated controls, confirming the pathogenicity. *P. cryptogea* has been reported as a root pathogen of lettuce in the USA (Linde *et al.*, 1990). It has been detected in hardy ornamental nursery stocks in Germany (Theman *et al.*, 2002), but this is the first report of *P. cryptogea* on lettuce in Belgium and Europe.

Linde A.R., Stanghellini M.E., Matheron M.E., 1990. Root rot of hydroponically grown lettuce caused by *Phytophthora cryptogea*. *Plant Disease* 74, 1037.

Pittis J.E., Colhoun J., 1984. Isolation and identification of Pythiaceae fungi from irrigation water and their pathogenicity to *Antirrhinum*, tomato and *Chamaecyparis lawsoniana*. *Phytopathologische Zeitschrift* **110**, 301-318.

Theman K., Werres S., Lüttmann R., Diener H.A., 2002. Observations of *Phytophthora* spp. in water recirculation systems in commercial hardy ornamental nursery stock. *European Journal of Plant Pathology* **108**, 337-343.

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## DISEASE NOTE

### FIRST REPORT OF PHYTOPLASMA INFECTIONS IN FRUIT TREES AND GRAPEVINE IN ALBANIA

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Orchards and vineyards were surveyed in eight districts of Central and South-Eastern Albania for the presence of phytoplasma diseases. Symptoms of European stone fruit yellows (ESFY), apple proliferation (AP), pear decline (PD), and grapevine yellows (GY) were observed in several plantings. Samples were collected for laboratory testing from symptomatic apples (8), pears (4), apricots (3), myrobalans (2), Japanese plum (1), and grapevines (4). Fruit trees were assayed by single-step PCR using primers f01/r01 specific for the "AP" phytoplasma group (Lorenz *et al.*, 1995), which comprises AP, PD and ESFY, followed by RFLP using restriction enzymes *SspI* e *BsaAI*. Nested PCR was used for grapevines using universal primers R16F2/R16R2 (Lee *et al.*, 1995) or P1/P7 (Smart *et al.*, 1996), followed by primers specific for "flavescence dorée" (FD) [R16(V)F1/R16(V)R1, Lee *et al.*, 1995] or "boir noir" (BN) (rStol/fStol, Maixner *et al.*, 1995). Five fruit-trees (apricot, myrobalan and plum) were infected by ESFY, five apples by AP and a pear by PD. All grapevines had BN, but not FD. The presence of AP was confirmed serologically with a specific monoclonal antibody. Although none of the diseases appeared to spread in epidemic form in Albania, the presence of their vectors is suspected since infections were detected in plants of different varieties and age.

Lee I.-M., Bertaccini A., Vibio M., Gundersen D.E., 1995. Detection of multiple phytoplasmas in perennial fruit trees with decline symptoms in Italy. *Phytopathology* **85**: 728-735.

Lorenz K.H., Schneider B., Ahrens U., Seemüller E., 1995. Detection of the apple proliferation and pear decline phytoplasmas by PCR amplification of ribosomal and nonribosomal DNA. *Phytopathology* **85**: 771-776.

Maixner M., Ahrens U., Seemüller E., 1995. Detection of the German grapevine yellows (Vergilbungskrankheit) MLO in grapevine, alternative hosts and a vector by a specific PCR procedure. *European Journal of Plant Pathology* **101**: 241-250.

Smart C.D., Schneider B., Blomquist C.L., Guerra L.J., Harrison N.A., Ahrens U., Lorenz K.-H., Seemüller E., Kirkpatrick B.C., 1996. Phytoplasma-specific PCR primers based on sequences of the 16S-23S rRNA spacer region. *Applied and Environmental Microbiology* **62** (8): 2988-2993.

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## DISEASE NOTE

### PUMPKIN YELLOW VEIN MOSAIC VIRUS: A NOVEL BEGOMOVIRUS INFECTING CUCURBITS

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Pumpkin plants (*Cucurbita moschata*) exhibiting yellow vein mosaic symptoms were collected in 2001 from Coimbatore, Tamil Nadu state, South India. Total DNAs extracted from symptomatic leaves produced diagnostic PCR-bands using primers designed to amplify the complete coat protein gene on DNA-A and the movement protein on DNA-B (Muniyappa *et al.*, 2003). Primers were also designed to amplify full-length clones and sequences of DNA-A (2739 nt) (Genebank No. AY184487) and DNA-B (2683 nt) (AY184488) were obtained. Phylogenetic comparisons of DNA-A and -B sequences of the begomoviruses showed that they were most closely related to *Squash leaf curl China virus* (AB027465) at 87% nucleotide identity, and *Tomato*

*leaf curl New Delhi virus* – Severe isolate (U15015) at 56% nucleotide identity. The number and arrangement of viral open reading frames were identical to the Old World bipartite begomoviruses. The putative virus was transmitted by *Bemisia tabaci*, and has a limited host range, infecting four cucurbits and *Nicotiana tabacum* out of 67 species tested (Muniyappa *et al.*, 2003). Less than 90% nucleotide identities in DNA-A allows the conclusion that this is a previously unknown species of begomovirus (Fauquet *et al.*, 2000) and we name it Pumpkin yellow vein mosaic virus (PYVMV).

Fauquet C.M., Maxwell D.P., Gronenborn B., Stanley J.,

2000. Revised proposal for naming geminiviruses. *Archives of Virology* **145**: 1743-1761.

Muniyappa V., Maruthi M.N., Babitha C.R., Colvin J., Brid-  
don R. W., Rangaswamy K.T., 2003. Characterisation of  
pumpkin yellow vein mosaic virus. *Annals of Applied Biol-  
ogy* **142** (In press).

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