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DISEASE NOTES

# First Report of *Xanthomonas arboricola* pv. *pruni* Causing Leaf Spot and Twig Necrosis on Peach (*Prunus persica*) in Montenegro

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During 2017 to 2018, leaf and fruit spot and twig necrosis were observed in peach orchards located in Ćemovsko Polje, near Podgorica, central Montenegro. The symptoms were observed on plants of different cultivars and year of planting within the plantation covering more than 20 ha. The most sensitive cultivar was Royal Bel, with the disease severity on leaves more than 90% in 2018, whereas Big Top and several other unknown cultivars were moderately affected. The leaf spots were initially small, angular, water-soaked, later necrotic, and surrounded by a weak halo. The leaf lesions were mostly concentrated on the leaf tip and along the central vein. As the disease progressed, the lesions merged and necrotic tissue dropped out, leaving a “shot-hole” leaf appearance. Eventually, infected leaves turned yellow and dropped off. On fruits, small, circular, water-soaked or dark brown spots were observed. Lesions on twigs were dark brown, elongated, and sunken. On some plots, the disease caused damage to peach production, which led to reduced quality of fruits and orchard productivity. From different

symptomatic plant parts, bacterial strains, forming yellow, convex, and mucoid colonies, were isolated on yeast extract–dextrose–CaCO<sub>3</sub> agar medium. Thirty-six strains were selected based on hypersensitivity in tobacco. All strains were gram negative, strictly aerobic, oxidase negative, catalase positive, hydrolyzed esculin, and did not grow at 37°C. Out of all, two strains hydrolyzed starch and two strains did not hydrolyze gelatin. PCR analysis, with primer pair XapY17-F/XapY17-R, produced a single characteristic band of 943 bp in all 36 strains (Pagani 2004; Pothier et al. 2011). For molecular identification, PCR amplification and sequencing of the *gyrB* gene of nine representative strains was performed using sets of primers described by Parkinson et al. (2007). Obtained partial DNA sequences showed that seven strains (GenBank nos. MN092938, MN092940, MN092941, MN092942, MN092944, MN092945, and MN092946) share 98.97 to 99.71% of *gyrB* sequence identity with *Xanthomonas arboricola* pv. *pruni* (*Xap*) pathotype strain ICMP51. The sequences of two strains (GenBank nos. MN092939 and MN092943) showed 100% identity to *gyrB* gene of *Xap* strains isolated from peach (MG049922.1) and apricot (KX950802.1) in Hungary and peach (FN808372.1) in Italy. Pathogenicity was tested by spraying young peach shoots and by infiltration of young peach leaves (cv. Royal Time) with the bacterial suspension (10<sup>7</sup> CFU/ml in sterile distilled water) of all 36 strains and *Xap* strain 69VR (CFBP3892), respectively, in three replicates. Sterile distilled water was used as the negative control. The shoots and leaves were maintained at about 25°C and high humidity in a glasshouse. Lesions appeared on all inoculated shoots 11 days and on leaves 6 to 9 days after inoculation. The pathogen was reisolated from the symptomatic tissues, and identity was checked by PCR using XapY17-F/XapY17-R primers, fulfilling Koch's postulates. According to their biochemical, molecular, and pathogenic characteristics, the strains isolated from peach in Montenegro were identified as *Xap*. *Xap* is a quarantine organism in the European Union as well as in Montenegro. In Montenegro, the pathogen was first described on almond trees in 1994. There were no further data about this pathogen in the country up to now. To our knowledge, this is the first report of *Xap* affecting peach in Montenegro.

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