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DISEASE NOTES

First Report of Bacterial Spot Caused by *Xanthomonas arboricola* pv. *pruni* on Apricot in Hungary

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ABSTRACT

In June 2016, red-purple necrotic lesions, each 1 to 5 mm in diameter and surrounded by a chlorotic halo on leaves and water-soaked or dark brown sunken lesions on fruits of apricot (*Prunus armeniaca* L. cv. Bergecot and Toyesi) trees were observed in a 5 ha commercial orchard in Fejér County, Hungary. Disease incidence ranged from low (10%) on cv. Toyesi to more than 90% on cv. Bergecot. As the disease progressed, the necrotic areas on leaves dropped out, leaving a "shot-hole" appearance. Isolation was carried out on modified Tween-80 semiselective medium (Schaad et al. 2001) from 40 diseased leaves and fruits sampled from 20 different trees. After incubation at 28°C for 3 to 5 days, yellow, mucoid colonies appeared and the hydrolysis of Tween 80 could be observed as a white zone around the colonies. Three isolates were selected that induced a hypersensitive response in tobacco (*Nicotiana tabacum* cv. Xanthi) plants 48 h after inoculation with a 10^8 CFU/ml bacterial suspension in water. All strains were gram-negative rods, oxidase negative, and strictly aerobic, and showed typical biochemical characteristics of the *Xanthomonas* genus (Schaad et al. 2001). In order to confirm identity of isolates as *X. arboricola* pv. *pruni* (Xap), specific PCR assays, sequencing, and pathogenicity tests were conducted. Duplex-PCR with Xap-specific primers (XarbQ-F/XarbQ-R and XapY17-F/XapY17-R) (Pothier et al. 2011) gave positive results. Furthermore, double-strand sequencing of the gyrase B (*gyrB*) (Parkinson et al. 2007) and *ftsX* genes (primers XapY17-F/XapY17-R for *ftsX*) was conducted. Sequences of *gyrB* (GenBank KX950802) and *ftsX* (KY039173) had 100% identity with reference genomic sequences of the Xap strains: CFBP3894 (NZ_LOMI01000009, LOMI01000020) and IVIA 2626.1 (NZ_LJGN01000040, LJGN01000033). Pathogenicity was confirmed by artificial inoculation of detached leaves of 1-year-old apricot trees (two leaves/tree sampled from five trees) (Randhawa and Civerolo 1985). Isolates were infiltrated (10^8 CFU/ml) by a syringe (0.5 ml/leaf). Sterile distilled water was used as negative control. Leaves were incubated on 0.5% water agar at 25°C and 16 h photoperiod with fluorescent light. All leaves inoculated with the isolates developed confluent water-soaking spots 3 to 4 days after inoculation. These became dark brown, necrotic spots, sometimes surrounded by grayish white or purple margins. No symptoms were observed on control leaves. The bacterium was reisolated from leaf spots and identity of the isolates was confirmed by PCR. To our knowledge, this is the first confirmed report on the occurrence of this pathogen on apricot in

Hungary. Xap is the causal agent of bacterial spot of stone fruits, one of the most important diseases of *Prunus* species included in the EPPO A2 list of pests recommended for regulation for European Union member countries. Apricot is an economically important crop in Hungary, with a production of ca. 5,000 ha, and the pathogen could have a significant impact on apricot production in the country.

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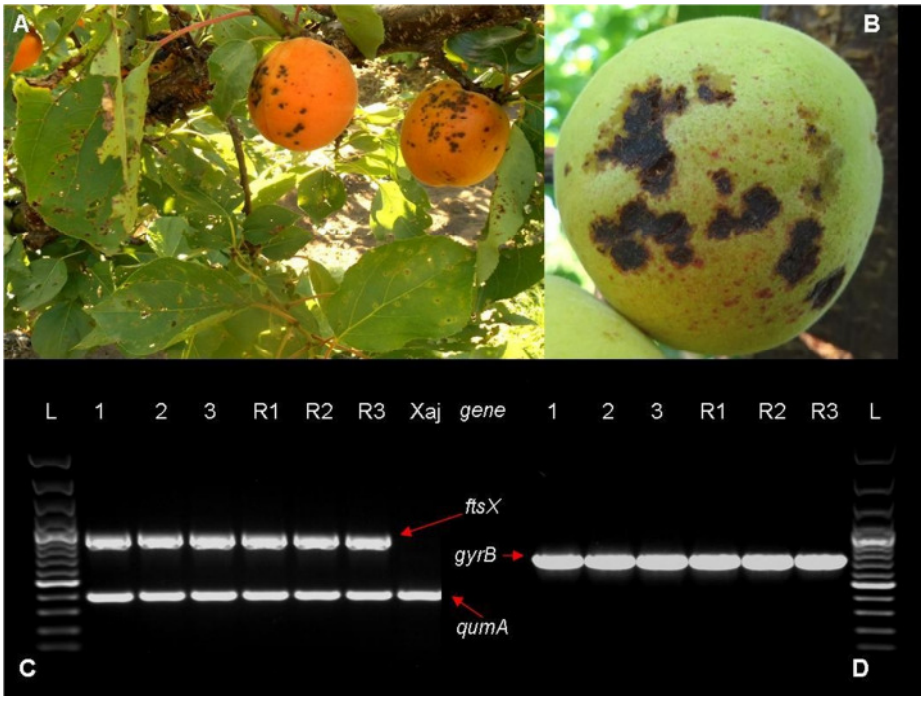

Supplementary Figure S1 Symptoms caused by X. arboricola pv. pruni on apricot cvs. Bergecot (A) and Toyesi (B) fruits and leaves. Duplex-PCR (C) and a PCR of gyrB (D). 100 bp DNA ladder (L); Original isolates (1-3); reisolated strains (R1-R3); X. arboricola pv. juglandis strain isolated by Süle (unpublished) (Xaj).