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Home > Plant Disease > Table of Contents > Full Text HTML
Previous Article | Next Article

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DISEASE NOTES

First Report of *Tilletiopsis pallescens* Causing White Haze on Apple in Croatia

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Citation |

ABSTRACT

Apple (*Malus domestica* L. Borkh.) represents around 50% of total fruit production in Croatia, with approximately 120,000 tons/year and a wide range of cultivars harvested from August to November. During November 2014, apples 'Pink Lady', harvested in an orchard with hail netting near Vratisinec (Croatia), showed white haze symptoms (around 6% of fruit). Skin defects were characterized by whitish to greyish, extensive mycelial growth on fruit surface, which usually develops either before harvest or after long-term storage (Baric et al. 2010). Fungi were isolated from symptomatic epidermal tissue on Rose Bengal Chloramphenicol agar (RBCA) plate. To obtain ballistospores, the spore-fall method was used (Pennycook and Newhook 1978). After 7 days incubation in the dark at 26°C, single spores were isolated from whitish to cream colonies and transferred on potato dextrose agar (PDA). Pathogenicity was tested on 20 'Pink Lady' apples and the pathogen was inoculated by aerosol diffusion on the surface sterilized with 70% ethanol. Symptoms occurred after 10 days and *Tilletiopsis pallescens* was reisolated from inoculated fruit on

Molecular analyses, based on amplification of nuclear ribosomal internal transcribed spacer region DNA, were performed. PCR amplification was carried out from single-spore DNA extraction using universal primers ITS1 and ITS4 (White et al. 1990). Two amplified sequences (Accession Nos. KR269863 and KR269864) were BLAST-searched in GenBank, obtaining 100% homology with strains of *T. pallescens*. To confirm the species, DNA sequences were aligned with CLUSTAL W with closely related species of *Tilletiopsis* (*T. pallescens* GQ281316.1, DQ317636.1; *T. washingtoniensis* DQ025483.1; *T. lilacina* AB025683.1, AB025689.1T; *T. cremea* AB025690.1; and an undefined *Tilletiopsis* sp. GQ281313.1), and a phylogenetic analysis with the Neighbor Joining method based on Maximum Composite Likelihood model (bootstrap 1,000) was performed. The phylogenetic tree confirmed the identity of the isolates as the species *T. pallescens*. To our knowledge, this is the first report of *T. pallescens* causing postharvest white haze on apple in Croatia. The presence of white haze causes cosmetic defects on the fruits, reducing their

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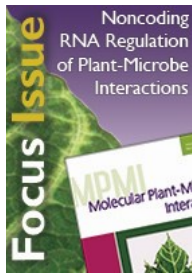

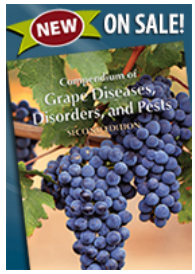

marketability of fruit, so *T. pallescens* could be considered an emerging issue for Croatian apple production.

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