



NEW DISEASE REPORT

First report of *Colletotrichum scovillei* causing anthracnose of pepper in Kosovo

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In September 2022, typical symptoms of anthracnose were observed on pepper fruits (*Capsicum annum* cv. Somborka) grown in two commercial fields located in the municipalities of Peja and Rahovec in western Kosovo (Figures 1–3). Dark lesions developed on fruits, which later appeared sunken, necrotic and surrounded by brown haloes. Brown to grey conidial masses were also observed in association with lesions (Figure 4). In both affected fields, disease incidence was approximately 40% and yield losses were estimated to be above 30%. Diseased tissue fragments were excised from fruits, surface sterilised with 1% NaOCl for two minutes, rinsed in sterile-distilled water, transferred onto potato dextrose agar (PDA) and incubated for five days at $27 \pm 1^\circ\text{C}$ in the dark. Colony morphology and single spores showed characteristics consistent with the description of *Colletotrichum scovillei* (Damm et al., 2012). The internal transcribed spacer (ITS) region, the glyceraldehyde-3-phosphate dehydrogenase (GAPDH) and the beta-tubulin (TUB2) genes from both isolates were amplified and sequenced with primer pairs P-ITS1/P-ITS4, GDF1/GDR1 and BT2Fd/BT4R, respectively (White et al., 1990; Dubrulle et al., 2020). Sequences for both isolates were identical to each other and to *C. scovillei* strain CBS 126529 (Damm et al., 2012). Sequences were deposited in GenBank under Accession Nos. OQ818873 and OQ819176 (ITS), OQ859040 and OQ874731 (GAPDH), and OQ859039 and OQ874732 (TUB2) for DLS 1918-A and DLS1918-R isolates, respectively.

To fulfil Koch's postulates, the two isolates were inoculated onto pepper fruits cv. Somborka. Four healthy fruits per isolate were surface disinfected with 70% ethanol, washed twice with sterile-distilled



FIGURE 1 Anthracnose symptoms on pepper fruits caused by *Colletotrichum scovillei* in a commercial field in Peja, western Kosovo

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FIGURE 2 Anthracnose symptoms on pepper fruits caused by *Colletotrichum scovillei* in a commercial field in Peja, western Kosovo



FIGURE 3 Anthracnose symptoms on pepper fruits caused by *Colletotrichum scovillei* in a commercial field in Rahovec, western Kosovo

water and air dried. Each fruit was then inoculated with 10 μ l of a conidial suspension (1×10^6 conidia/ml). Four pepper fruits were treated with 10 μ l of sterile water and used as a control. After inoculation, the fruits were kept at $27 \pm 1^\circ\text{C}$ and 90% relative humidity in the dark. Ten days after inoculation, pepper fruits showed typical anthracnose symptoms, similar to those observed in the field. No symptoms developed on pepper fruits treated with sterile distilled water. *Colletotrichum scovillei* was re-isolated from symptomatic fruits and identified using PCR and sequencing of amplicons for the ITS gene. The results confirmed 100% identity to accessions OQ818873 and OQ819176 mentioned above. The assay was repeated twice with the same results.

Colletotrichum scovillei has been described as the causal agent of anthracnose on pepper in eastern Asia (de Silva et al., 2019), Brazil and South Carolina (Caires et al., 2014; Toporek et al., 2021). To our knowledge, this is the first report of the *C. scovillei* on pepper in Kosovo and Europe. Since *C. scovillei* is considered a challenging pathogen that can result in significant yield and quality losses, and pepper is the main vegetable crop in Kosovo, our results stress that measures are urgently needed to ensure disease control in the outbreak area and, possibly, pathogen eradication, prior its possible spread into new areas in Europe.



FIGURE 4 Brown to grey conidial masses were in association with lesions

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