

DISEASE NOTES

FIRST REPORT OF LEAF SPOT CAUSED BY *COLLETOTRICHUM COCCODES* ON *VIOLA TRICOLOR* IN IRAN

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Viola L. is the largest genus of Violaceae. Violets naturally grow in northern Iran, but they are cultivated in most parts of Iran. The fungus *Colletotrichum coccodes* is a common pathogen on vegetables of Solanaceae family, causing fruit anthracnose of tomato, pepper and eggplant and black dot of potato (Rodeva *et al.*, 2016). *Viola* sp. from West Azerbaijan is a new host for *Colletotrichum* sp. in the *C. destructivum* species complex (Arzanlou *et al.*, 2015). During a survey in 2016 on the campus of Sari Agricultural University, symptoms of leaf spot, necrotic rings with a tan center and dark brown margin were observed on violets. Isolation and purification of suspected fungal agent were done on WA medium, then transferred to potato dextrose agar (PDA). Colonies of *Colletotrichum* sp. grown on PDA plates were dominated by white, sparse aerial mycelium, which becomes grey with age, and by abundant, black sclerotia evenly distributed over the agar surface. Conidia were 16-24 × 3-4 µm, straight, fusiform and abruptly tapered to each end.

For pathogenicity tests leaves were inoculated with a mycelial plug from the periphery of the representative isolate (C4a) grown on PDA. After 10-15 days, symptoms similar to those of the original leaves were observed. The fungus was reisolated on PDA from the lesions on the inoculated leaves; the colonies and the morphology of conidia were the same as those of the original isolates.

For molecular identification, the internal transcribed spacer (ITS) regions of isolate C4a were amplified with the universal ITS4/ITS5 primers (White *et al.*, 1990). The 600 bp product was sequenced (GenBank accession No. KY176353) and showed the highest similarity (99%) with *C. coccodes* (AJ301984.1) To our knowledge, this is the first report of *C. coccodes* in Iran causing leaf spot on *Viola tricolor*.

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DISEASE NOTE

FIRST REPORT OF *PODOSPHAERA XANTHII* CAUSING POWDERY MILDEW ON *AGERATUM CONYZOIDES* IN INDIA

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During March and April 2015, powdery mildew symptoms were observed on *A. conyzoides*, a very common weed, along roadsides and in some agricultural fields of Satara District (M.S., India). Symptoms appeared as thin white patches on the stem and both leaf surfaces. Infected leaves were deformed and showed curled margins. Disease incidence was estimated to be 100%. Microscopical observations revealed nipple-shaped, solitary hyphal appressoria, erect conidiophores with cylindrical foot cells, 30-65 × 10-13 µm in size, sometimes slightly constricted at the basal septum or slightly swollen at the very base, followed by 1-4 shorter cells, forming long chains of ellipsoid-ovoid to doliiform conidia, 35-55 × 14-22 µm in size, bearing distinct fibrosin bodies. Germ tubes were short, lateral, simple to forked. Chasmothecia were absent. Based on these morphological characters, the pathogen was tentatively identified as *Podosphaera xanthii* (Braun and Cook, 2012). A reference specimen (HAL-2924F) was deposited in the Geobotany Herbarium of Martin Luther University, Halle, Germany. To confirm the identity of the fungus, genomic DNA was extracted and the internal transcribed spacer (ITS) region was amplified by PCR and sequenced using the primers ITS5 and ITS4 (White *et al.*, 1990). The resulting 257 bp sequence was deposited in GenBank (accession No. KX369237). BLAST analysis showed 99% identity with comparable sequences of *P. xanthii* from *Verbena brasiliensis* from Korea (KJ472787) and *Xanthium strumarium* from India (KX369236). To our knowledge, this is the first report of *P. xanthii* on *A. conyzoides* in India. This weed may be acting as a source of inoculum for powdery mildew disease on different crops and plants of ornamental and horticultural importance.

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