New Disease Reports

First report of *Colletotrichum capsici* causing anthracnose on grapes in Maharashtra, India

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Anthracnose is an economically important disease of table grape cultivars (*Vitis vinifera*) in the warm and wet tropical and sub-tropical areas of India. Although worldwide anthracnose is reported to be caused by *Elsinoe ampelina* (de Bary) Shear (anamorph *Sphaceloma ampelinum* de Bary) (Mirica, 1998), in India *Colletotrichum gloeosporioides* and *C. acutatum* have also been reported as causal pathogens (Kumar *et. al.*, 1994; Chowdappa *et. al.*, 2009). However, in 370 isolations from anthracnose samples collected from commercial vineyards during 2009, *Colletotrichum capsici* was isolated with a frequency of 3.8%. It was isolated from small dark brown spots on the leaves and petioles of cv. Thompson Seedless (Tas-A-Ganesh and 2A clones) and from cv. Chardonnay (Fig. 1) in mixed infection with *C. gloeosporioides.*

The fungus was identified based on morphological characters. The isolates were slow growing with a growth rate of 3.86 ± 0.29 mm/day on Czapek Dox Agar at 30 ± 0.1°C. The colonies were brownish white and later turned dark grey or moss green in colour. The acervuli were either scattered or in concentric rings. It produced falcate conidia of size 21.7 x 5.1 µm. All of 14 isolates from grape produced setae in their acervuli (Fig. 2).

To confirm the identity, PCR was performed using a *C. capsici* species-specific primer pair, CcINT (TCTCCCCGTCCGCGGGTGG) and ITS4 (TCCTCCGCTTATTGATATGC) (Sheu & Wang, 2005). The total genomic DNA was extracted from five-day-old fungal mycelium according to the protocol of Lee & Taylor (1990) and PCR was performed according to Chowdappa *et al.* (2009). The expected single specific fragment of approximately 460 base pairs was amplified from all the tested *C. capsici* isolates, confirming their identity (Fig. 3). This primer pair did not amplify DNA from isolates belonging to *C. gloeosporioides.* The pathogenicity of *C. capsici* was confirmed by artificial inoculation using a spore suspension (1x10 conidia/ml) sprayed on young growing shoots of Thompson Seedless plants raised in pots. The pots were maintained in a humid chamber (RH > 90 %) at 28 ± 1 °C. Symptoms were observed after seven days (Fig. 4). *C. capsici* was re-isolated from these lesions fulfilling Koch's postulates. No symptoms were produced in leaves of plants sprayed with sterile distilled water. Although *C. capsici* is reported on many hosts from India and other countries of the world (Farr & Rossman, 2010), to our knowledge, this is the first report of *Colletotrichum capsici* affecting grapes.

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Figure 1

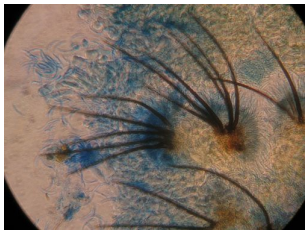

Figure 2

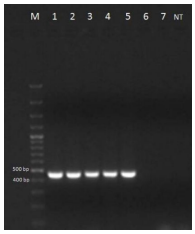

Figure 3

Figure 4

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