New Disease Reports

First report of *Dactuliophora* species causing leaf spot of cowpea in India

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Cowpea (*Vigna unguiculata*) is an important legume crop in developing countries and is cultivated throughout the arid and semiarid tropics (Zohri *et al.,* 1992; Singh *et al*., 1997). India is a leading cowpea producer (Asiwe *et al*., 2009). Over the period 2010 to 2011, cowpea plants were found infected by a new leaf spot-causing pathogen in a survey conducted in the Mysore district of Karnataka State.It was observed that leaf spot symptoms increased after rains leading to the death of infected plants. Initially leaf spots appeared as small whitish lesions with concentric rings on upper surface and were pinkish grey on the abaxial surface (Fig. 1). As the disease advanced, the spots coalesced to form larger necrotic areas (Fig. 2). These symptoms were persistent throughout the crop season with sclerotia forming on the lower surface. On the lower leaf surface, sclerotiophores bearing sclerotia were produced from the immersed mycelium (Fig. 3). Sclerotia were generally globose to irregular in shape and dark to grey brown in colour measuring 139.5 x 89 µm. Upon germination, germ tubes were produced over the entire surface of the sclerotium measuring 69.9 x 6 µm (Fig. 4). The symptoms persisted throughout the crop season and affected the overall yield of cowpea.

Fungal colonies were isolated from surface sterilised (2% NaOCl) infected leaf samples on potato dextrose agar (PDA). Aerial mycelium without sclerotia developed on PDA. The colonies were white to brown in colour with mycelia devoid of spores. The fungus was identified as *Dactuliophora* sp. based on cultural and morphological characteristics (Barnett & Hunter, 1972). On the host, white mycelium was appressed to the cuticle on the lower leaf surface. A septum near each hyphal branch and a slight constriction at the branch were also observed. The isolated fungus was tested for pathogenicity on healthy plants under glasshouse conditions. A twelve-day-old mycelial culture of *Dactuliophora* sp. was mixed with sterile distilled water and the suspension sprayed on cowpea plants. The plants were kept under high humidity (80%) for five days and at ambient temperature conditions. Leaf spot symptoms appeared on leaves after twenty-five days. The lesions coalesced to form larger concentric rings with sclerotia that developed from the sclerotiophores. The pathogen was re-isolated from infected plants. No such symptoms were observed on control cowpea plants treated with sterile distilled water. Cowpea is susceptible to a wide range of pests and pathogens, which can cause severe loss in all stages of growth and development (Summerfield & Roberts, 1985). The most significant and widespread diseases are caused by rusts (*Uromyces phaseoli* var. *vignae*), wilt (*Fusarium oxysporum* f.sp. *tracheiphilum*) and powdery mildew (*Erysiphe polygoni*) respectively. The incidence of *Dactuliophora tarrii* on cowpea was recorded earlier as a minor leaf spot pathogen in tropical Africa (Leakey, 1964). However, *Dactuliophora* as a major pathogen of cowpea has not previously been reported elsewhere. This is the first report of leaf spot disease of cowpea caused by *Dactuliophora* sp. from India.

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Figure 1

Figure 2

Figure 3

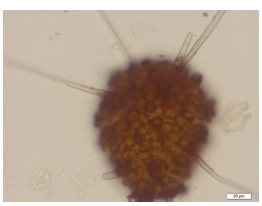

Figure 4

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