



New Disease Reports

First report of *Alternaria infectoria* on amaranth (*Amaranthus caudatus* ssp. *mantegazzianus*) in Argentina

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Amaranth is an ancient crop originating in the Americas that can be used as a high-protein grain (12-17%) or as a leafy vegetable, and has potential as a forage crop (Putnam *et al.*, 1989). Grain amaranth species have been important in different parts of the world and at different times for several thousand years (Meyers & Putnam, 1988). At the end of December 2009 the presence of discoloured panicles and seeds of amaranth (*Amaranthus caudatus* ssp. *mantegazzianus*) was recorded at the Instituto Fitotécnico of Santa Catalina, Llavallol locality, Buenos Aires Province, Argentina. Up to 100% of the surface area of seeds was affected by the disease (Fig. 1). Fungal isolates with morphological characteristics similar to those of *A. infectoria* were collected from diseased grains and cultured on potato carrot agar (PCA) medium, then incubated at 20 ± 2 °C under a light/dark cycle (12/12 h). After seven days, light grey coloured colonies reaching 35 mm in diameter were observed. Conidia were formed on the surface of the agar. The average conidial size on PCA was 32-40 x 9.6 µm with a conidial beak length of 16-48 µm, and four transverse septa. The presence of a longitudinal septum was recorded in 18% of the conidia with 2% having two partitions (Fig. 2). In general, these measurements are within the size range determined by Simmons (2007) for *A. infectoria*.

An isolate (CN-2364) was evaluated for its pathogenicity by spraying a suspension of conidia (1 x 10⁵ spores/ml) on 400 surface-sterilised and healthy seeds and panicles. Control panicles and seeds were sprayed only with water. The inoculated panicles and seeds were placed on moistened cotton and paper in plastic trays (22 x 12 x 8 cm) and incubated in growth chambers at 20 ± 2 °C with an 8 h photoperiod for seven days. After this period, discoloration similar to the original symptoms developed on the inoculated panicles and seeds. In addition, a high proportion of abnormal seedlings sprouting from the inoculated seeds displayed swollen roots, folded cotyledons, or stunted roots (Fig. 3). In the case of inoculated panicles, the entire destruction of the axes was observed. No symptoms were observed on non-inoculated panicles or seeds. Koch's postulates were confirmed by re-isolation of *A. infectoria* from the infected material. The culture has been deposited at the La Plata Spegazzini Colección de Cultivos under accession number 1077. There are previous reports of *Alternaria* species (*A. alternata* and *A. chlamyospora*) associated with

discolouration of amaranth seeds (Noelting *et al.*, 2009a, 2009b) but to our knowledge, this is the first documented report of *A. infectoria* affecting panicles and seeds of amaranth in Argentina. To the authors' knowledge, *A. infectoria* has not been detected in an amaranth crop at other localities. *Alternaria infectoria* has been reported on wheat in Argentina (Perelló *et al.*, 2007). This disease could significantly reduce the production and the quality of amaranth due to seed transmission and its possible effects on other plant parts.

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Figure 1

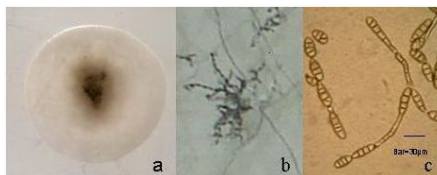


Figure 2



Figure 3

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