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DISEASE NOTES OR NEW RECORDS

Occurrence of *Drechslera avenae* on durum wheat (*Triticum durum*) seed in Argentina

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Abstract. *Drechslera avenae* was isolated from durum wheat seeds from Buenos Aires Province, Argentina, following ISTA protocols. Two assays using artificial inoculation of seed were performed to determine the pathogenicity of this fungus to durum seeds. The infection rates obtained (21–26%) demonstrate the importance of this fungus as a potential seedborne pathogen of durum wheat. This is the first record of *D. avenae* parasitising durum wheat seed in Argentina.

Durum wheat (*Triticum durum*) health can be affected by several pathogens which damage plant growth during different stages. Injuries produced by seedborne pathogens during heading, flowering and ripening of wheat plants by genera such as *Bipolaris*, *Drechslera*, *Curvularia*, *Alternaria* and *Fusarium* are very important (Wiese 1987). In Argentina, numerous species of *Drechslera* have been reported on wheat seed (Annone 1985; Carranza 1983).

During analysis of durum wheat grains for health tests, a sample yielded a fungus determined as *Drechslera avenae* (teleomorph = *Pyrenophora avenae*) by Dr Sara Hambleton and Dr R. A. Shoemaker (National Fungal Identification Service, Ontario, Canadá, DAOM 229561). This fungus has been recorded as a major pathogen of oats causing leaf blotch and it is also mentioned as being seedborne in several cereal-growing areas including Argentina. There are no records on durum wheat and in common wheat references are limited (Hampton and Matthews 1978).

This note reports the pathogenicity of *D. avenae* and its effect on the germination of durum wheat seed.

Durum wheat samples of cv. Pro INTA Facón from Necochea (38°10′S; 58°00′W) (Buenos Aires Province, Argentina) were analysed following the rules given by the International Seed Testing Association (ISTA) for the blotter test method (Neergaard 1974). After the incubation period, the development of a dark-brown mycelium over some grains was observed using a stereomicroscope. The fungus was transferred to PDA in slant tubes and incubated at 25 ± 1°C.

For the pathogenicity tests, inoculum consisted of a mycelium and conidial suspension adjusted to 4×10^5 spores/mL in sterile distilled water. Tritón-X 100 (0.1 mL) was added to 100 mL of suspension. Two assays were carried out with the inoculated seeds. In assay one, seeds were analysed following the blotter test method with four replicate samples of 100 seeds each and a non-inoculated control. In the second assay, the seeds were sown into trays (18 × 25 cm) containing soil which had been sterilised three times at 120°C, for 30 min, on separate days. Four replications with 100 seeds each, one with a non-inoculated control, were used. Both assays were incubated in a growth chamber at 20–22°C under cool-white fluorescent light supplemented with near UV with a 12 h photoperiod, for 7 days in assay one and for 12 days in assay two. Cultures were re-isolated from inoculated grains and seedlings by standard phytopathology methods. The fungus was present only on inoculated grains and seedlings and the isolates were compared morphologically with those used for inoculation to complete Koch's postulates. *D. avenae* forms grey to black colonies, with coarse mycelium and radiating with characteristic milky white to greyish tufts on PDA. Conidiophores emerge singly or in groups of 2–4, more or less cylindrical, straight or flexuous, often geniculate, sometimes swollen at the base, brown, smooth, up to 350 μm long, 8–11 μm thick. Conidia are solitary or occasionally catenate, straight, cylindrical, sometimes slightly tapered, rarely obclavate, pale to mid yellowish or olivaceous brown, smooth, 25–78 (53.8) × 11–19 (13.2) μm, 2–6 septate.

Data from the pathogenicity tests using the blotter method (assay 1) showed that the infection rates were between 22 and 26%. These results correlated with a considerable decrease in the germination. Germination percentages in inoculated seeds were 64–66%, and between 88 and 90% in the non-inoculated controls. In the second assay, the emergence of seedlings from inoculated grains with infection rates of 21–24% ranged from 65 to 71%, whereas the non-inoculated controls had 95–97% germination.

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Infection levels of the fungus resulting from inoculations and corresponding reductions in germination indicate that natural seed infections by *D. avenae* could probably reduce establishment in infected durum crops. The epidemiology of this new seedborne pathogen of durum wheat is important in that seeds may act as a means of survival of the pathogen from one growing season to the next. Infected seed may also serve as a mean of introducing *D. avenae* into new regions within Argentina and other countries.

This is the first record of *D. avenae* as a component of the pathogen complex infecting durum wheat seed in Argentina and the world.

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