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Alternaria infectoria species-group associated with black point of wheat in Argentina

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Regional surveys are being conducted in Argentina to assess the presence of wheat (*Triticum aestivum*) pathogens on grains across the main cropping area. During 2001 and 2002, grain samples with a dark brown or blackish discoloration around the embryo end, known as black point, were observed on several cultivars across the wheat region of Buenos Aires Province.

Seed analysis by blotter and agar tests (Neergaard, 1979) showed up to 55% of prevalence (number of samples infected over the total) of *Alternaria* spp. and a mean natural infection of 37%. Morpho-cultural studies were carried out on potato carrot agar. The isolates were typified as belonging to the *A. infectoria* species-complex according to their sporulation pattern and the production of long secondary conidiophores (Andersen *et al*., 2002).

Pathogenicity tests were carried out in Petri dishes following two standard methods: blotter test and agar test using 2% potato dextrose agar, inoculating wheat seeds with a conidial suspension (2×10^5 conidia mL^{-1}) of 20 selected isolates. Seeds were incubated for seven days at 20 ± 2°C in a growth chamber under 12 h fluorescent plus near ultraviolet photoperiod. No disease symptoms were observed in the controls. Infected seeds became totally or partially black and seedlings from them appeared weak with reduced vigour. Black point is known to affect grain quality adversely, impairing flour, semolina and their products (Mathur & Cunfer, 1993).

Simmons (1992) organized the genus *Alternaria* into 14 species-groups based on characteristics of conidia and chain formation. The *A. infectoria* species-group comprises nine known species and an unknown number of distinct taxa yet to be described. In Europe, North America and Australia studies have shown that grain samples are infected with *A. alternata* and *A. infectoria* species-groups ranging from low levels to 100%.

In Argentina, previous records of *Alternaria* spp. refer to *A. alternata* associated with black point in wheat. However, in this study the vast majority of *Alternaria* strains conformed to the *A. infectoria* complex. The incidence levels of this group are gaining importance and have increased in recent years probably due to changes in cropping systems in most of the different agroclimatic zones of Argentina.

This is the first published report of *Alternaria infectoria* species-complex causing black point in wheat grains in Argentina. This highlights the necessity to better understand the relationship of this group with the deterioration of wheat sub-products and the risk of harmful mycotoxins production.

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Alternaria alternata fruit rot of pomegranate (*Punica granatum*) in Greece

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During September and October 2005 and 2006 a fruit disease was observed in pomegranate orchards, in the region of Larissa, Central Greece, causing significant yield losses of approximately 40–50% especially on cv. Kapmaditika. Internal symptoms consisted of a black rot of the fruit core beginning from the calyx area, while the hard, leathery rind appeared healthy and fruits remained firm.

Alternaria alternata was consistently isolated from infected tissues, and the identification of the fungus was based on morphological characteristics of mode of sporulation and conidia (Simmons, 1967). Conidiophores were short, septate, branched or unbranched, and green to brown. The conidia were obpyriform with conical or cylindrical beak, ovoid or ellipsoidal. They were produced in long, single but most often branched, chains. Conidia ranged from 10 to 21 μm in length and from 4 to 10 μm in width at the broadest point (average 17×6 μm). Cultures grew rapidly on potato dextrose agar (PDA), and they were initially white turning to grey later. The isolate was deposited in CBS International Culture (CBS 120829).

Pathogenicity tests were conducted on fruits and were repeated three times. PDA-plugs, 5 mm in diameter, with actively grown mycelium were transferred into the fruit calyx as well as on wounds made by a scalpel on previously sterilized fruit surfaces. Following inoculation, the fruits were placed in plastic bags and kept at 23°C for 10 days. Fruits inoculated in the same way using PDA disks were kept as control. Although there were no external symptoms on any of the fruits, decay of the core was observed when inoculated fruits were cut vertically. Control fruits showed no decay. *Alternaria alternata* was reisolated from inoculated fruits, confirming Koch's postulates.

Alternaria alternata has been reported to cause a leaf spot disease on pomegranate in India (Madhukar & Reddy, 1976) however, fruit rot was not reported. Fruit rot caused by *Alternaria* sp. has previously been reported in USA, Mexico (Farr *et al*., 2007), and as a postharvest disease in Greece (Pantidou, 1973). Although this disease has been detected before in Greece, it was noticed again only recently probably due to the recent expansion of pomegranate cultivation and changes in weather conditions. This is the first report of *A. alternata* causing fruit decay in pomegranate orchards in Greece.

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