



First report of early blight caused by *Alternaria protenta* on potato in Algeria

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Potato (*Solanum tuberosum* L.) is one of the most important vegetable crop grown in Algeria. Although less studied than late blight, early blight caused by large-spored *Alternaria* species including *A. solani*, and *A. grandis* is an important foliar disease on these crops under Algerian climatic conditions. Over the past few years, this disease became a major constraint on potato production in Algeria and high incidences of early blight (up to 80 %) were recorded in the north-western parts of Algeria (Bessadat et al., 2016). During years 2012-2014, surveys were carried out and sampling was performed in 12 potato growing regions from East to West and from North to South of Algeria. Two hundred and forty-seven samples with typical early blight symptoms (dark, elongated or circular lesions with concentric rings surrounded by a yellow halo) were collected. Two to three lesions per leaf were excised, surface disinfested for 2 min in 0.1% (v/v) sodium hypochlorite solution and plated on potato dextrose agar medium at 22°C. Twenty-two pure cultures were induced to sporulate by plating on V8 medium and incubating for two weeks under alternating 12 h darkness and 12 h near UV light. Cultural and morphological characteristics of the isolates [color and pigmentation of the culture, shape and size of the conidia (conidial length and width, beak length)] compared with those in the literature (Simmons, 2007) did not clearly differentiate between the large-spored *Alternaria* species currently reported on potato crops. For identification at the species level, partial regions of the calmodulin (*cal*) and RNA polymerase second largest subunit (*rpb2*) genes were amplified using published primer sets (Gannibal et al., 2014; Woudenberg et al., 2014) and sequenced. Maximum likelihood cluster analyses of the resulting nucleotide sequences revealed two isolates (AD82 and AD86 isolated from potato samples collected in the El Oued region) with sequences at the two loci [GenBank accession Nos. KX870505 and KX870506 (*cal* locus), KX870507 and KX870508 (*rpb2* locus)] that shared 100% sequence homology to *A. protenta* isolate CBS 116696 (KJ718394, JQ646236) and were thus assigned to this species. *A. protenta* was previously known in Africa only on *Helianthus annuus* (Simmons, 1986) but isolates from *S. tuberosum* and *S. lycopersicum* collected in New Zealand and USA and formerly recognized as *A. solani*, were recently moved to *A. protenta* based on phylogeny (Woudenberg et al., 2014). To confirm pathogenicity of the two *A. protenta* isolates, leaves of susceptible 3-week-old potato plants were inoculated with two 10 µL drops of a 10⁴ conidia/ml suspension. All leaves inoculated with *A. protenta* showed extending lesions that may reach up to 50% of the leaf area at 21 dpi. To our knowledge, we report the first occurrence of *A. protenta* as pathogen on potato in Algeria.

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