



## Characterization of fungal pathogens (*Diaporthe angelicae* and *D. eres*) responsible for umbel browning and stem necrosis on carrot in France

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Résumé en anglais	<p>A collection of 102 <i>Diaporthe</i> isolates was compiled from lesions on carrot, parsley and wild Apiaceae species in France from 2010 to 2014. Molecular typing based on ITS rDNA sequences resulted in the identification of 85 <i>D. angelicae</i> and 17 <i>D. eres</i> isolates. Based on sequences of the 30 part of the IGS rDNA, intraspecific variability was analysed for 17 <i>D. angelicae</i> and 13 <i>D. eres</i> isolates from diverse plant species, locations in France, and plant tissues. The genetic diversity was greater for <i>D. angelicae</i> isolates than <i>D. eres</i> isolates. In vitro sensitivity of five <i>D. angelicae</i> and four <i>D. eres</i> isolates to each of nine fungicides was similar for isolates of both species, with a marked variation in fungicide sensitivity depending on the active ingredient. To assess the pathogenicity of <i>D. angelicae</i> and <i>D. eres</i> isolates on carrot, one isolate of each species was inoculated onto umbels in a controlled environment. Typical lesions were observed for both isolates. Carrot crop debris collected from a seed production field in France and placed in controlled conditions produced perithecia and ascospores typical of <i>Diaporthe</i>, that were further characterized molecularly as belonging to <i>D. angelicae</i>. Detection of <i>Diaporthe</i> species on seed lots from three carrot production fields in France was investigated. Both species were detected on seeds by conventional PCR assay, with a greater frequency for <i>D. angelicae</i> than <i>D. eres</i> (67% vs 33%, respectively). Overall, the results highlighted that umbel browning in carrot seed crops in France was mainly caused by <i>D. angelicae</i>.</p>
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