

## Characterization of small-spored *Alternaria* from Argentinean crops through a polyphasic approach - DTU Orbit (09/11/2017)

### Characterization of small-spored *Alternaria* from Argentinean crops through a polyphasic approach

Small-spored *Alternaria* have been isolated from a wide variety of food crops, causing both economic losses and human health risk due to the metabolites produced. Their taxonomy has been discussed widely, but no scientific consensus has been established in this field to date. Argentina is a major exporter of agricultural products, so it is essential to thoroughly understand the physiological behaviour of this pathogen in a food safety context. Thus, the objective of this work was to characterize small-spored *Alternaria* spp. obtained from tomato fruits, pepper fruits, wheat grains and blueberries from Argentina by a polyphasic approach involving metabolomic and phylogenetic analyses based on molecular and morphological characters. Morphological analysis divided the population studied into three groups; *A. arborescens* sp.-grp., *A. tenuissima* sp.-grp., and *A. alternata* sp.-grp. However, when these characters were simultaneously analysed with molecular data, no clearly separated groups were obtained. Haplotype network and phylogenetic analysis (both Bayesian and maximum parsimony) of a conserved region yielded the same result, suggesting that all isolates belong to the same species. Furthermore, no correlation could be established between morphological species-groups and a metabolite or group of metabolites synthesized. Thus, the whole set of analyses carried out in the present work supports the hypothesis that these small-spored *Alternaria* isolates from food belong to the same species. Identification at species level through classical morphology or modern molecular techniques does not seem to be a useful tool to predict toxicological risk in food matrices. The detection of any small-spored *Alternaria* from Section *Alternaria* (D.P. Lawr., Gannibal, Peever & B.M. Pryor 2013) in food implies a potential toxicological risk.

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