Automated and unbiased image analyses as tools in phenotypic classification of small-spored Alternaria species.

Automated and unbiased image analyses as tools in phenotypic classification of small-spored Alternaria species. For more than 25 years, controversy has surrounded the characterization and differentiation of small-spored Alternaria spp. And, therefore, the application of names of several species that are involved in the pathology of diseases related to host-specific toxin production. The name A. alternata often has been broadly applied to various morphologically and chemically distinct groups of isolates from different hosts. The purpose of this study was to develop and evaluate automated and unbiased image analysis systems that will analyze different phenotypic characters and facilitate testing and application of the morphological species concept in Alternaria taxonomy. Host-specific toxin-producing Alternaria isolates assigned to five morpho-species were compared with representative isolates of morphologically distinct A. alternata. Combined results of growth rates at different temperatures, colony morphology, and metabolite profiles were found to be useful in characterization and differentiation of small-spored Alternaria spp. when standardized conditions are applied and representative isolates employed for comparison.

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