Fingerprinting using extrolite profiles and physiological data shows sub-specific groupings of Penicillium crustosum strains - DTU Orbit (09/12/2018)

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Fingerprinting of Penicillium crustosum strains was performed using different phenotypic characteristics. Seven strains of this extremely homogenous species were selected; of these, five originated from geographical locations characterized by low temperatures, and one from a location with a low water activity. Principal component analysis (PCA) was performed using micromorphological data, temperature- and water-dependent growth rates, and extrolite profiles obtained by HPLC analysis. The micromorphological data were less informative, while the growth-rate data were informative only if the strains investigated already showed slight adaptations to the selected external parameter. In contrast, PCA analyses of the extrolite data showed groupings of the strains according to their origins and known physiological differences. These groupings are in full agreement with the clustering obtained by previous amplified fragment length polymorphism (AFLP) study. We thus demonstrate here for the first time that combined qualitative and quantitative extrolite profiles can be used as a tool for phenotypic fingerprinting, to complement, or replace, molecular fingerprinting techniques.

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