

401. Development of a standard operation procedure (SOP) for the polyphasic identification of clinically relevant species

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The identification of dermatophytes and other clinically relevant filamentous fungi has been essential for a rapid diagnosis and the preservation of authentic microorganisms in culture collections. The aim of this work was the development of a Standard Operating Procedure (SOP) for the polyphasic identification of clinically important species that might be deposited in Micoteca da Universidade do Minho (MUM) and can be used in different clinical settings. To achieve this goal 27 strains of dermatophytes belongs to the taxa *Epidermophyton floccosum*, *Microsporum spp.* and *Trichophyton spp.* and 11 strains of *Sporothrix* genus belonging to different species were characterised using microscopy, biochemical tests and molecular biology.

The microscopic analysis allowed distinguishing the genera of dermatophytes, since different genera have different macroaleuriospores and microaleuriospores. On macroscopic examination, it is verifiable that, in PDA medium, *T. rubrum* had a red-brown pigment (Sudman et al., 1965). On the other hand, *T. violaceum* suffered a growth inhibition in TA-1 medium (David Ellis et al., 2007). As for *Sporothrix spp.*, it was not possible to distinguish the species through micro and macroscopic analyses. Through the Urease Production Test, it was possible to verify that *T. tonsurans* and *T. mentagrophytes* produced a high amount of the enzyme and *T. violaceum* and *T. rubrum* strains did not. In the case of *Sporothrix spp.*, it was possible to verify that *S. mexicana*, *S. pallida*, *S. schenckii* and *S. brasiliensis* produced a high amount of urease and catalase. The strains *S. inflata*, *S. fungorum*, *S. ghanensis* and *S. globosa* neither produced urease or catalase.

The present project allowed developing an effective and fast procedure in the identification of dermatophytes, however, phenotypic analysis is quite limiting in identifying strains (mainly from the *Sporothrix spp.* complex) and, therefore, the genotypic approach is essential for unambiguous identification.

David Ellis, Davis, S., Alexiou, H., Handke, R., & Bartley, R. (2007). *Descriptions of Medical Fungi* (2 nd). the Authors.

Sudman, M. S., & Schmitt, J. A. (1965). *Differentiation of Trichophyton rubrum and Trichophyton mentagrophytes by Pigment Production* . *Applied Microbiology*, 13(2), 290–290. doi: 10.1128/am.13.2.290-290.1965