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P-180 - POLYPHASIC IDENTIFICATION AND TYPING TRICHOPHYTUM RUBRUM STRAINS OF CLINICAL ORIGIN

Angélica Córdoba-Fuzga[1]; Carla Santos[1]; Célia Soares[1]; Juan C. Gomez[2]; Natalia Loiaza-Díaz[2]; Ana C. Mesa-Arango[3]; Nicolás Refojo[4]; Patricio Godoy-Martínez[5]; Cristina M. Souza-Motta[6]; Cledir Santos[7]; Nelson Lima[1]

1 - CEB-Centre of Biological Engineering, Micoteca da Universidade do Minho, University of Minho, Campus of Gualtar, Braga, Portugal; 2 - Grupo de Microbiología ProLab S.A.S. Laboratorio Clínico, Calle 19 # 44 – 25, piso 2, Ciudad del Río, Medellín, Colombia; 3 - Grupo de Investigación Dermatológica, Facultad de Medicina, Universidad de Antioquia, Medellín, Colombia; 4 - Mycology Department, INEI, ANLIS "Dr. Carlos G. Malbrán", Ciudad Autónoma de Buenos Aires, Argentina; 5 - Instituto de Microbiología Clínica, Universidad Austral de Chile, Valdivia, Chile; 6 - Department of Mycology, Centre of Biological Sciences, Federal University of Pernambuco, Recife, Brazil; 7 - Department of Chemical Sciences and Natural Resources, CIBAMA, BIOREN, Universidad de La Frontera, Temuco, Chile

Background

The dermatophyte *Trychophytum rubrum* is the most frequent aetiological agent of dermatophytosis in humans around the world representing a major public health problem, not just for European countries but also for tropical countries where climate conditions allow major propagation for this ascomycete. For instance, in Portugal, *T. rubrum* was the dermatophyte most frequently isolated (83.3%) in a toenail onychomycosis geriatric population survey [1]. The identification, pathogenicity, biology, and epidemiology of *T. rubrum*, is of interest for both dermatologists and medical mycologists [1,2]. Currently, in many countries and clinical laboratories, *T. rubrum* strains isolated from lesions are primarily identified by conventional culture-based methods, including colony morphology and slide culture only. This approach does not provide evidence of intraspecific variations with a lack of information to track infections, determine common sources of infections and recurrence or reinfection after treatment, and analyse their virulence and drug resistance [3]. The aim of this work is to use a polyphasic approach to study *T. rubrum* from different geographic origins in order to identify intraspecific characteristics with clinical interest.

Method

About 40 European and South American *T. rubrum* and reference strains were used. Macro and micro morphological techniques, urease assay, dermatophyte milk agar test and hair perforation test (HPT) where combined with molecular biology techniques, such as the analysis of internal transcribed spacer (ITS) region, Trubrum specific primers for differentiation among closely related species, mating type MAT1-1 a-box characterisation and DNA fingerprinting (e.g., $(GACA)_4$).

Results & Conclusions

Culturally *T. rubrum* strains showed white and cottony colonies on the obverse and blood-red pigment on the reverse. *T. rubrum* strains were urease negative and inhibited in dermatophyte milk agar. In the HPT, which is useful to differentiate *T. rubrum* from *T. interdigitale*, any strain was able to perforate the hair despite normal growth being observed. The analysis of ITS region confirmed all the strains as a *T. rubrum* species as well as the Trubrum primers generate a typical amplicon of 200 bp. The DNA fingerprinting is now explored in order to find the best approach to differentiate intraspecific variations and/or geographic differences. In conclusion, there are several techniques that can be applied to identify and characterise *T. rubrum* from different origins depending of the technologies available in each clinical laboratory or country.

References & Acknowledgments

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