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Autores
David Álvarez Ordás
Aitor Balmaseda Rubira
Clara Fraga Orduña

Editor
Aitor Balmaseda Rubina

Diseño y Maquetación
Aitor Balmaseda Rubina

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A NOVEL TAXA-SPECIFIC rRNA-FISH PROBE FOR *Cladosporium* (ASCOMYCOTA: DAVIDIELLACEAE)

Pazian FM.*, Candeias A., Caldeira AT. and González-Pérez M.

HERCULES Laboratory, Évora University, Palácio do Vimioso, Largo Marquês de Marialva, 8, 7000- 809, Évora (Portugal)

The study of filamentous fungi is of special interest in medicine, agriculture, industry and cultural heritage safeguard. Among several taxa, *Cladosporium* ssp. is one of the most ubiquitous and most widely distributed in the environment. Thus, *Cladosporium* species are also common colonizers of artworks whose proliferation is associated to the appearance of deleterious effects. In the last decades Fluorescence *In Situ* Hybridization (FISH) established new ways for microbial identification in several research fields, including Cultural Heritage microbiology. However, the design of probes with high specificity to the target cells continue to be a major challenge. Therefore, in this work a novel taxon-specific probe to detect *Cladosporium* was developed. It was designed in silico and probe specificity was evaluated using various model microorganisms belonging to different phylum and taxa. In silico analysis and posteriorly sequence data analysis performed indicated the potential of the sequence as a FISH probe. Experimental analysis (cytometrical and microscopical) of the FISH assays performed by parallel hybridizations, with target and reference strains, showed that the novel FISH probe possess high specificity for *Cladosporium*. The novel taxa-specific FISH probe described in this work contributes to a better identification of filamentous fungi by RNA-FISH.

Correspondence: marlon@uevora.pt