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P-138 - MUCORALES STRAINS WITH BIOTECHNOLOGICAL USE: A POLYPHASIC APPROACH IDENTIFICATION

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Background

Mucorales are mostly terrestrial ubiquitous filamentous fungi with coenocytic hyphae and asexual reproduction based on specialized structures (sporangia). Most of these fungi formed zygospores as result of the sexual reproduction. The natural relationships of them are very poorly understood due to the lack of distinguishing morphological characters.

Some Mucorales have an important role in nature as decomposers, namely the capacity to degrade xenobiotic or recalcitrant compounds, make them important candidates for biotechnological use in the bioremediation processes. In previous study, two Mucorales isolates, *Gongronella* sp. MUM 10.263 and *Rhizopus* sp. MUM 10.260, isolated from vineyard soils from Alentejo (Portugal), were submitted to a selective adaptation with metalaxyl, an acylalanine fungicide widely used against oomycetes causing downy mildews. Resulting adapted strains, Gongronella sp. MUM 10.262 and Rhizopus sp. MUM 10.261 showed high tolerance and capacity to degrade metalaxyl [1].

The aim of this study was to identify at species level the metalaxyl degrading strains using also several reference Mucorales strains from *Absidia, Circinella*, *Gongronella* and *Rhizopus* genera for a polyphasic approach.

Method

The approach combined classical morphology, molecular biology and Matrix Assisted Laser Desorption Ionization Time of Flight Intact Cell Mass Spectrometry (MALDI-TOF ICMS), as described elsewhere [2].

Results & Conclusions

The results of ITS phylogeny analysis showed that *Rhizopus* sp. is *Rhizopus oryzae*. The spectral analysis confirm that *Rhizopus oryzae*, grouping within other strains from that species. *Gongronella* sp. were grouped with the closely related species *G. butleri* and *G. lacrispora* but forming a distinct cluster. In addition, molecular data grouped *Gongronella* sp. in a separated cluster when compared with the newest specie *G. guangdongensis*, described by Liu et al (2015) [3]. Therefore, from the molecular and proteomic analyses the isolate MUM 10.263 seems to represent a putative new species of *Gongronella*.

References & Acknowledgments

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