

Retrospective Determination of Species Distribution and Antifungal Susceptibility of Mucorales Fungi Isolated from Clinical Specimens

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KEY WORDS

- ✓ Mucorales
- ✓ Mucormycosis
- ✓ Epidemiological data
- ✓ MALDI-TOF-MS
- ✓ Antifungal susceptibility testing

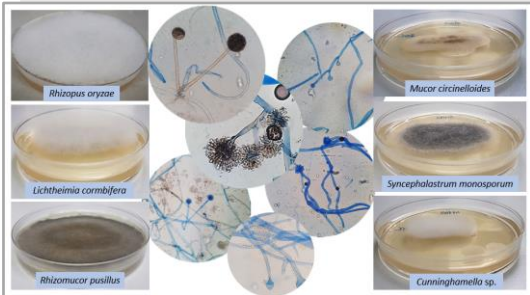
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THESIS ABSTRACT

In this study, species identification of Mucorales strains was performed by morphological characteristics and MALDI TOF MS and compared with the ITS region. By looking at the antifungal susceptibility profiles of these strains, the first single-center epidemiological data for our country was obtained.

In this study, 87 Mucorales strains belonging to different patients, which were received to the Central Microbiology (Mycology) Laboratory of Bursa Uludag University Health Application and Research Center between 2003 and 2022 and stored at -80oC, were used. BLAST analysis was performed only with reference strains for identification by the ITS region and very precise rules were used. Of these strains, 77 were identified by the ITS region, with Rhizopus species being the most common (75.3%). However, 10 isolates were not been able identified by the ITS region. Identification failure was considered to be 5.7%. Complete agreement was achieved with molecular identification at the genus level in all isolates. Although there was no difference in terms of species between extraction from solid and liquid media in identification by MALDI TOF MS, the liquid extraction method was significantly more successful. In vitro antifungal susceptibilities of 77 strains with complete species identification were determined by CLSI M38 reference method. No posaconazole resistance was detected, but amphotericin B resistance was observed in Rhizopus arrizus strains, albeit at a low rate. In conclusion, R. arrizus was the most frequently isolated species in our center, MALDI TOF MS identification was quite successful when liquid extraction method was used and there was no serious antifungal resistance in our isolates.

APPLICATION AREAS OF THE THESIS RESULTS

There is no study in Turkey where the species of Mucorales order fungi were identified using different methods in such a large patient group. With this study, the first single-center epidemiological series in our country was obtained.

ACADEMIC ACTIVITIES

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