Susceptibility profiles of *Malassezia* species against antifungal drugs of clinical use

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Malassezia yeasts are the aetiological agents of pityriasis versicolor and *Malassezia* folliculitis, and can be associated as contributory factor in other skin disorders. In addition, had been associated with systemic infections in immuno-compromised patients and neonates.

These yeasts are lipophilic and most of them obligatory lipid-dependent. Because of their strict nutritional requirements, broth microdilution reference method is not applicable to *Malassezia* species. Therefore, modifications such as use of supplemented medium, different inoculums size, temperature and reading time, are required to allow *Malassezia* growth. *M. furfur*, *M. sympodialis* and *M. globosa* are the three major pathogenic *Malassezia* species

Aim:

to evaluate the antifungal susceptibility profiles of

M. furfur*, *M. sympodialis* and *M. globosa

against fluconazole (FZ), voriconazole (VZ),

ketoconazole (KZ), itraconazole (IZ)

and amphotericin B (AB)

Conclusions

- ✓ IZ and KZ were the most active drugs against the 3 species tested. These yeasts were inhibited at low concentrations of these drugs and presented reduced interspecies variability.
- ✓ Although VZ it was shown as an active drug, MICs were slightly higher than those obtained for IZ and KZ, and some isolates showed high MIC values for the 3 species.
- ✓ Susceptibility profiles of these yeasts against FZ and AB were very variable, displaying high MIC values and wide ranges. **This is important considering that these are more commonly used drugs.**
- ✓ *M. furfur* showed the highest MIC values against all drugs tested, while *M. globosa* and *M. sympodialis* were more susceptible. **Differences observed among *M. furfur*, *M. sympodialis* and *M. globosa* emphasize the need to accurately identify and evaluate the antifungal susceptibility. Further investigations and collaborative studies are need for correlating *in vitro* results with clinical outcomes.**

Material and methods

132 *Malassezia* isolates

66 *M. furfur*

38 *M. sympodialis*

28 *M. globosa*

Identification performed using PCR-RFLP

CLSI M27-A3

reference document
Broth microdilution susceptibility testing

Modifications

OPTIMAL GROWTH

mode, MIC ranges, MIC50 and MIC90 and geometric mean (GM)

Results

MIC
($\mu\text{g/mL}$)

	FZ	KZ	AB	VZ	IZ
<i>M. furfur</i>					
GM	5.37	0.04	2.81	0.1	0.04
Mode	128	0.25	32	2	0,125
min	≤ 0.125	≤ 0.03	0.25	≤ 0.03	≤ 0.03
max	>64	0.25	>16	2	0.125
MIC50	4	0.03	2	0.06	0.03
MIC90	64	0.06	16	0.5	0.06
<i>M. sympodialis</i>					
GM	1.44	0.03	1.72	0.08	0.04
Mode	1	0.03	2	0.03	0.03
min	≤ 0.125	0.03	0.125	≤ 0.03	≤ 0.03
max	16	0.06	16	1	0,5
MIC50	1	0.03	2	0.03	0.03
MIC90	4	0.03	8	0.125	0.06
<i>M. globosa</i>					
GM	1	0,03	0,85	0.06	0.03
Mode	0.5	0,03	1	0.03	0.03
min	≤ 0.125	≤ 0.03	0.06	≤ 0.03	≤ 0.03
max	64	0.06	8	0.5	0.015
MIC50	1	0.03	1	0.06	0.03
MIC90	8	0.03	4	0.125	0.03