

**The *in vitro* and *in vivo* antifungal susceptibility testing of  
*Candida parapsilosis sensu stricto*, *Candida orthopsilosis* and  
*Candida metapsilosis* isolates**

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## **Summary**

The *C. parapsilosis sensu lato* species was separated into *C. parapsilosis sensu stricto*, *C. orthopsilosis* and *C. metapsilosis* using molecular biological methods. According to the literature the *in vitro* antifungal susceptibility of the latter two species differ from the *C. parapsilosis sensu stricto*'s, however treatment guidelines only known for the *C. parapsilosis sensu stricto*.

First we performed time-kill studies with amphotericin B, fluconazole, voriconazole, posaconazole and 5-fluorocytosine in our work. Against all of the three members of the group amphotericin B was fungicidal at 1-4 µg/mL. Fluconazole proved to be fungistatic at ≤8 µg/mL concentrations against all of the members of the „*psilosis*” group. Voriconazole, posaconazole and 5-fluorocytosine showed excellent fungistatic activity against all of the three members of the group at concentrations still attainable in the blood. However most *C. orthopsilosis* isolates were only inhibited at 4-8×MIC voriconazole concentrations.

In case of the temporarily neutropenic mice 1 mg/kg daily amphotericin B, 10 and 20 mg/kg daily fluconazole treatments significantly reduced the tissue fungal burden against all of the members of the „*psilosis*” group, thus both fluconazole and amphotericin B proved to be efficacious. Although the members of the „*psilosis*” group have reduced echinocandin susceptibilities due to the amino-acid change in the glucan synthase enzyme, the daily dosage of 5 mg/kg CAS was effective against all of the isolates of the three species.

The basis of a successful treatment is the *in vitro* susceptibility testing which together with the recent susceptibility breakpoints can help to effectively cure the infections caused by the less known species as the routine diagnostic methods are currently not capable of the accurate separation of the „psilosis” group. Our *in vitro* and *in vivo* results show that the treatment of the *C. parapsilosis sensu stricto*, *C. orthopsilosis* and *C. metapsilosis* infections do not differ basically, thus depending on the clinical status of the patients fluconazole, amphotericin B and also caspofungin are considered as applicable therapeutic alternatives.

Keywords: „psilosis” group, *in vitro* antifungal susceptibility, *in vivo* murine experiments

Kulcsszavak: „psilosis” csoport, *in vitro* antifungális érzékenység, *in vivo* egérkísérletek