

## **IN VITRO EVALUATION OF PHENOTYPIC CHARACTERISTICS OF *Cryptococcus neoformans* AND *Cryptococcus gattii***

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The cryptococcosis is a systemic fungal disease caused by *Cryptococcus* spp. The pathogenesis involves inhalation of contaminated particles present in the air, especially in bird faeces. *Cryptococcus* spp. are cosmopolitan fungi and responsible for infections that initiate in the respiratory system and may spread to other sites, particularly to central nervous system. Of the more than 38 species of the genus, two species are epidemiologically important, *C. neoformans* and *C. gattii*. The virulence factors of these are polysaccharide capsule, melanin, phospholipase, urease, proteinase and growth at 37°C. This study aimed to evaluate phenotypic characteristics such as virulence capacity and antifungal susceptibility of *C. neoformans* and *C. gattii* isolated from cerebrospinal fluid of patients treated at the University Hospital of Maringa (UHM). The study was conducted with *C. neoformans* and *C. gattii* stored in mycology collection of Medical Mycology Laboratory of the Universidade Estadual de Maringa (UEM). Isolates were reactivated and confirmed the identification (microscopy, melanin production, urease and biochemical test with l-canavanine glycine bromothymol blue (CGB) agar). In order to assess the virulence, the capsule was stimulated and the diameter measured. Microbicidal activity it was assessed for 120 minutes of exposure of the strains to neutrophil activity. For antifungal susceptibility was used discs (CECON®) previously impregnated with the following antifungal: amphotericin B, ketoconazole, voriconazole, itraconazole and miconazole. The species was confirmed as *C. neoformans* and *C. gattii*. Regarding virulence factors analyzed, *C. gattii* presented higher diameter capsule (3.48 µm ±1.13 µm) than *C. neoformans* (2.73 µm ± 0.8 micrometers). The microbicidal activity of neutrophils was higher for *C. neoformans* (approximately 100% yeast killing) compared with *C. gattii* (approximately 73% yeast killing). For antifungal susceptibility test, both isolates were sensitive to all the drugs studied. Despite the absence of antifungal resistance, the species studied showed differences in virulence profile. *C. gattii* showed higher development of the capsule and a greater ability to survive kill compared to *C. neoformans*. These findings contribute to understand the different pathogenesis among *C. gattii* species and *C. neoformans*.

**Keywords:** Antifungals, *Cryptococcus* spp., Virulence factors.