

**Title:** ADHESION CAPABILITY TO KERATINOUS SUBSTRATE (NAIL) AND PROTEINASE PRODUCTION BY FILAMENTOUS FUNGI ISOLATED FROM HIV POSITIVE PATIENTS SURFACE MYCOSES

**Authors:** Fontes, L.H.R.<sup>1</sup>, Fontes, V.C.<sup>1</sup>, Araújo Jr, R.O.<sup>1</sup>, Borges, K.R.A.<sup>1</sup>, Athaide, O.S.N.<sup>1</sup>, Ferreira, E.O.<sup>1</sup>, Santos, C.I.<sup>1</sup>, França, Y.R.<sup>1</sup>, Pedrozo e Silva, C.M.<sup>2</sup>, Andrade-Monteiro, C.<sup>1</sup>

**Institution** <sup>1</sup>UNICEUMA – Universidade CEUMA (Rua Josué Montello, nº 1, Renascença II São Luís – MA), <sup>2</sup> UFMA – Universidade Federal do Maranhão (Avenida dos Portugueses, 1966 - Bacanga, São Luís – MA)

**Abstract:**

Fungal infections have been a major problem among immunocompromised patients where cutaneous mycoses are the most common of them being mainly caused by dermatophytes. However, the frequency of non-dermatophyte filamentous fungi has grown significantly between patients with low immunity, since they are more vulnerable to opportunistic infections. Thus, this research aimed to study the adhesion capability to keratinous substrate (nail) and verify the production of proteinase by filamentous fungi from superficial mycoses of HIV positive patients. The evaluated genera were *Aspergillus*, *Gliocladium*, *Penicillium* and *Paecilomyces*. For the adhesion and invasion test scraped sterile nails immersed in buffer solution containing standardized inoculums of conidia were used. Samples were incubated for 3 and 10 days at 28 °C. There after the nail fragments were washed and stained with methylene blue and adherence and growth of fungal structures were visualized under light microscopy. The production of proteinase was checked by inoculating isolates in culture medium containing bovine albumin and incubation at 28 °C for 7 days. The formation of a clear halo around the colony growing indicates the enzymatic production. All isolates of *Aspergillus*, *Penicillium* and *Paecilomyces* proved to be adherent to the nail fragments with production of various fungal structures in both incubation periods tested. *Fusarium* isolates showed adhesion and developing on nail fragments only after ten days of incubation, whereas 100% of the isolates of the genus *Gliocladium* were negative for this capability. All samples evaluated did not produce proteinases. Fungal isolates of HIV-positive patients' lesions presented virulence properties considered important for the start and the future establishment of an infection as they showed good adhesion and development having only a keratinous substrate as sole source of nutrient.