

**Title: OCCURRENCE OF *Histoplasma capsulatum* IN UNDERGROUND CAVITIES**

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**Abstract:** *Histoplasma capsulatum* is a dimorphic fungus that grows in a filamentous form and produces aerial hyphae at temperatures between 25°C and 30°C, but undergoes morphogenesis for yeast phase at 37°C. This fungus is considered an important pathogen and develops in soils enriched by droppings of birds and bats. It can be isolated from environments where live and accumulates such animals. Human histoplasmosis is caused by two varieties of the same fungus, *H. capsulatum* var. *capsulatum* and *H. capsulatum* var. *duboisii*. In Brazil, *H. capsulatum* var. *capsulatum* infection is considered relatively common, occurring endemically in five different regions. Among the molecular methods used to identification, the polymerase chain reaction (PCR) is the most widely used technique in the diagnosis of histoplasmosis, and presents high levels of sensitivity. This study aimed to verify the occurrence of the fungus *H. capsulatum* in 36 caves from Minas Gerais, Pará and Paraná states. The samples were collected from different cave zones (external, light zone, twilight zone and dark zone). Genomic DNA extraction and quality tests of 272 soil samples and bat droppings were initially performed and species-specific primers were applied (HC-1 and HC-2) to investigate *H. capsulatum* DNA occurrence. In total 42 samples (15,44%) showed a band pattern in a range of 400pb, indicating the presence of *H. capsulatum* DNA in these samples, wherein 37 from soil samples and five from bat droppings samples. The dark zone presented the highest occurrence of *H. capsulatum*, followed by twilight zone, external and light zones, hitherto several of the histoplasmosis outbreaks reported are associated with tour groups visiting caves inhabited by bats. Justifying the importance of investigative studies in order to determine the occurrence of the histoplasmosis etiologic agent as well as demonstrate the effectiveness of molecular methods application. Therefore, it has been found that the species-specific primers HC-1 and HC-2 can be used for initial studies of *H. capsulatum* occurrence in environmental samples and are considered a quick method in *H. capsulatum* DNA detection.

**Key words:** *Histoplasma capsulatum*, Species-specific primers, PCR, Caves.