Sporothrix brasiliensis and interaction *Acanthamoeba castellanii*

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Introduction

Sporothrix brasiliensis is a dimorphic fungus found in the environment, vegetation and wood, being the etiological agent that causes human and feline sporotrichosis. Sporotrichosis has been identified in several areas of the world; most cases come from Central and South America mainly in Mexico, Colombia, Brazil and Peru, as well as the African continent. The genus *Acanthamoeba* is a group distributed in soil, water and air. Some species may be pathogenic and opportunistic, they feed on a variety of microorganisms, but some of them have evolved becoming resistant since they are able to survive and leave the amoebae after internalization. The *A. castellanii* presents two stages of life, the trophozoite and the cyst. In the trophozoite state the amoeba fed affectively, the encystment occurs as a form of protection to unfavorable conditions amoeba.

Objectives:

to analyze the interaction of *Sporothrix brasiliensis* in the process of encystment of *Acanthamoeba castellanii*.

Methods:

the trophozoites (10⁵ cells mL⁻¹) were seeded onto the culture plates using Tris buffer as a encystment inducer. After 30 minutes of acclimatization, the amoebas were incubated with conidia of *S. brasiliensis* in a ratio of 1: 1 at 30 °C for 96 h. The control was isolated amoebae in the medium of encystment. At the end of the incubation time, the number of trophozoites and cysts were determined in the Fuchs-Rosenthal counting chamber. The experiment was performed in triplicate and repeated once. The data will be expressed as percentage of encystment (number of cysts by total number of amoebas).

Figure 1. *Sporothrix brasiliensis* and interaction *Acanthamoeba castellanii*. **a** internalized fungus coming out of amoeba; **b** amoeba in process of encystment .

Results:

after the amoeba contact with the conidia of *S. brasiliensis* cysts were formed in 74.5% and remained as trophozoites 25.5%. The control sample showed 54% of *A. castellanii* cysts and 46% of trophozoites. Demonstrating a 20.5% increase in cysts formation between the samples with the presence of the fungus compared to amoeba without the fungus in the solution of encystment.

	Encystment (%)	
	Cysts	Trophozoite
<i>A. castellanii</i> and <i>S. brasiliensis</i>	74.50%	25.50%
<i>A. castellanii</i>	54%	46%

Conclusion:

the interaction between the fungus and the amoeba resulted in an increase in the population of cysts and in the decrease of the trophozoite form.