

**06. Fungal infection & disease**

6e. Basic mycology (incl in vitro and in vivo studies, pathogenesis)

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**Background** *Prototheca* spp. are unicellular, chlorophyll-free microalgae widely distributed in the environment. These microorganisms are the only known plants implicated in a range of clinically relevant opportunistic infections in both humans and animals. Protothecosis is an emerging disease, whose incidence has been increasing steadily in recent years. In particular, protothecal mastitis poses a major health and economic problem in dairy herds. Very little is known on the *Prototheca* pathogenesis, including pathogen-host interactions. The aim of this study was to evaluate the ability and intensity of *Prototheca* spp. adhesion to murine skin cells.

**Methods** Four type strains of *Prototheca* pathogenic (*P. bovis*, *P. ciferrii*, *P. wickerhamii*), and non-pathogenic (*P. stagnora*) species were used to infect murine keratinocyte cell line (Kera-308) at a MOI of 0.2. After 4 hrs of incubation at 37°C in 5% CO<sub>2</sub>, the exposed cells were washed with PBS, lysed in 0.5% saponin, plated on Sabouraud Dextrose Agar (SDA), and incubated for 72 hrs at 30°C before counting (CFU) of cell-adherent algae. The total CFU of algae was calculated with another *Prototheca*-infected Kera-308 cells, without rinsing step, by plating, on SDA, both culture medium and cell lysate pooled. Adhesion was calculated as the percentage of the adhered algae relative to the total number of algae added.

**Results** The adherence of *P. bovis*, *P. ciferrii*, *P. wickerhamii*, and *P. stagnora* were 23.4%, 28.9%, 20.7%, and 1.3%, respectively. The results confirm the pathogenic potential of the first three species, and the purely saprophytic lifestyle of *P. stagnora*. Similar experiments, with the same species, yet different mammalian host lines are currently underway.

**Keyword 1**

algae

**Keyword 2**

*Prototheca*

**Keyword 3**

mammalian cells

## **Conflicts of interest**

### **Do you have any conflicts of interest to declare?**

I have no potential conflict of interest to report

### **Other support**

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