

***In vitro* algaecide effect of borate on *Prototheca* strains isolated from bovine mastitic milk**

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Algae of the genus *Prototheca* are one of the few plant-like organisms that cause infections in humans and animals. This environmental bovine mastitis agent nowadays is recognized to be endemic worldwide and considered a public health issue. *Prototheca* was found to be resistant to most antimicrobial agents tested. Borax compound has several usages, e.g. present in detergents and used on buffer solutions preparation. In this study, we determined the *in vitro* effect of borate and phosphate buffers both at pH 9, on *Prototheca* isolates retrieved from bovine mastitic milk of cows from different dairy herds from the Northwest of Portugal. Four *P. zopfii* and 5 *P. blaschkeae* isolates were used. For the susceptibility tests phosphate (PB) and borate (BB) buffers at pH 9 were prepared according to European and US Pharmacopeias. The CLSI M27-A2 guidelines were followed and each test was incubated for 5 min, 24 and 48 h, and 1 week at 37 °C in a humid chamber. Student T test on CFU was used to evaluate the effects of both buffers on growth inhibition on the above *Prototheca* strains. Survival was generally inhibited with time. However, *P. zopfii* presented higher significant multiplication rate in PB when compared to *P. blaschkeae*. But, when BB was used at pH 9, a decrease on *P. zopfii* growth could be observed. Also, *P. blaschkeae* growth was equally but slightly inhibited by both buffers, with only significant differences to *P. zopfii* after 1 week of incubation. Our results demonstrated that BB at pH 9 had an algaecide effect on *P. zopfii* at 24 and 48 h, with a total inhibition of growth after 1 week of incubation. However, the susceptibility of *P. blaschkeae* to both buffers did not show any significant differences. This preliminary study indicates that BB compared to PB, have a greater inhibition effect on the growth of *Prototheca* strains, especially on *P. zopfii*.