

TITLE: EVALUATION OF THE INTERFERENCE OF PREBIOTICS IN THE GROWTH OF ANAEROBIC BACTERIA

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ABSTRACT: The gastrointestinal tract (GIT) harbors approximately  $10^3$  to  $10^{14}$  microbial cells and these microorganisms are characterized as being stable in GIT and composed of several species. This microbiota is essential for the maintenance of health, preventing, for example, the establishment of pathogens. *Clostridium citroniae* and *Clostridium scindens* are bacteria that are part of the intestinal microbiota and can act as a barrier to infections caused by pathogens. Fructooligosaccharides (FOS) and Inulin are soluble fibers widely used as prebiotics associated with stimulating the growth of beneficial intestinal bacteria. The aim of this study was to evaluate the interference of the prebiotics Inulin, FOS and the combination of both in the growth of *C. citroniae* and *C. scindens*. Bacterial strains were cultured in Blood Agar Supplemented (ASS) with menadione and hemin and incubated for 24 hours at 37°C. The bacterial inoculum were adjusted to the concentration of  $10^8$  CFU/ml and 20 µl of each were inoculated into a 96-well plate containing the three prebiotic conditions, varying from 1% to 8%, in triplicate. The plate was incubated in anaerobic chamber for 24 hours and the readings performed every 1 hour on the ELISA reader (F50-TECAN) using the optical density in 620 nm spectrum (OD<sub>620</sub>). It was observed that the medium containing the combination of the two prebiotics was more efficient at 8% dilution, increasing the growth of *C. citroniae*. Therefore, it was possible to observe that the prebiotics used together in this study stimulated the growth of microorganisms of the microbiota, being an important way of assisting the microbiota in health maintenance. In order to know if microorganisms in the microbiota interfere in the growth of microorganisms considered pathogenic, in the presence of prebiotic, will be done co-cultivation of *C. citroniae* and *C. scindens* with *Clostridium difficile*, which is related to possible diseases of TG.

Keywords: Gastrointestinal tract, microbiota, prebiotic, *Clostridium*.

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