Title: **EXPERIMENTAL STUDY OF THE TRANSMISSION VIA AEROGEN OF** *Clostridium difficile* **IN WEANED PIGS**

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Abstract:

Infection with *C. difficile* may have subclinical signs and subtle manifestations of the disease; however, in neonatal piglet colitis, pseudomembranous colitis, and various other infection that can affect swine and are harmful attacking large numbers of animals, sometime causing death in weaned pigs and weight gain loss with economic losses to the farmer. This reached test the aerogen transmission of *C. difficile*. For this, a specially isolation cabinets was use. Six weaned pigs (15 days) were obtained from a farm free of *Clostridium difficile.* They were installed in couples in flier-proofed stall and microbiologically monitored daily for *Clostridium difficile* during 24 days. In the trials, the cabinets were placed in a straight line (cabinet 1 - control pigs, cabinet 2 - inoculated and cabinet 3 – sentinel pig). This way the air will flow from the control to the sentinel. The inoculum were prepared with *Clostridium difficile* VPI A/B 10463, with 7.21 x 10^8 CFU/mL. A aliquot of 3 mL was administered orally into the pharyngeal region with a syringe of pig number 2. Control and sentinel pigs were received sterile BHI broth (3 mL) as placebo. Piglets were fasted overnight before inoculation. Food and water were sterilized a given only 30 min after inoculation. Anorectal swabs were collected of each animal daily, and placed onto tubes with BHI broth (Brain Heart Infusion) submitted to thermal shock and incubated at 35°C for 48h in anaerobic conditions. DNA extractions were performed by boiling technique. The PCR reactions were directed for the detection of genes encoding toxins *tcdA* and *tcdB* with annealing temperature of 52°C for 1 min. By our results there was no infection of the sentinel group via aerogen. Showing that the transmission of the pathogen in this way. It is know so far until today what the most common way to transmission of C. difficile occurs through the fecal-oral route. We believe to be necessary to expand this knowledge in order to contribute to improvements in the prevention and control of this agent and avoid the spread in herds. Negative results are satisfactory for ensuring what transmission by air currents do not contribute to the infection process.

Key words: swine, experiment infection, inoculation, microbiology