



Effect of organic selenium on chicken intestinal health and *C. jejuni* carriage

Alexandre Thibodeau¹, Philippe Fravallo¹ et Ann Letellier¹

¹Groupe de recherche et d'enseignement en salubrité alimentaire (GRESA), Université de Montréal, Canada

In-feed non-antibiotic supplements are increasingly being used and developed for animal food production to limit the use of antibiotics in animal husbandry. Selenium has been successfully used in chicken to increase the animal performances. On the other hand, the effect of this additive on the chicken gut microbiome is unknown. Its effect on foodborne pathogens is also not studied. It is especially important in the case of the foodborne pathogen *Campylobacter jejuni* as it has been shown that selenium is important for this bacterium to achieve an efficient colonization of its chicken host. We therefore assessed the effect of organic selenium (yeast) on the chicken caecal microbiome and *C. jejuni* carriage. In this experiment, 2 chickens groups, inoculated or not with *C. jejuni* at 15 days of age, were fed a basal mashed diet with the following in-feed additives: 1)no additive 2)selenium-yeast (0.3ppm). Birds were raised in a level 2 animal facility with the *C. jejuni* positive and negative birds housed in different rooms. This experiment was replicated once. Birds were weighted weekly. *C. jejuni* colonisation was followed using plating on mCCDA. Serum glutathione peroxidase (GPX) levels were also monitored. At 35 days of age, 8 birds per groups were ethically euthanized. Birds fed selenium were found heavier in 1 out of the 2 experiments. *C. jejuni* levels were lowered, in one experiment, for the groups receiving selenium. Serum GPX levels were lowered in the groups that received selenium and this in both experiments. The microbiome of all birds is currently being analyzed by MiSeq 16S rDNA sequencing to asses any effect of the additives on the chicken microbiome. So far, in high sanitary conditions (level 2 facility) and in healthy birds, it is possible to conclude that the bird's performances as well as *C. jejuni* carriage were slightly affected when selenium-yeast was used.