

**EVALUATION OF THE EFFICACY OF THREE PROBIOTIC FEED ADDITIVES TO REDUCE
SALMONELLA TYPHIMURIUM INFECTION IN EXPERIMENTALLY CHALLENGED PIGLETS**

L. Peeters 1, L. Mostin 2, P. Wattiau 2, F. Boyen 3, J. Dewulf 1, D. Maes 1.

1 Ghent University, Faculty of Veterinary Medicine, Department of Reproduction, Obstetrics and Herd Health, Merelbeke, Belgium; 2 CODA-CERVA, Experimental Centre and Laboratory of Veterinary Bacteriology, Brussel, Belgium; 3 Ghent University, Faculty of Veterinary Medicine, Department of Pathology, Bacteriology and Avian Diseases, Merelbeke, Belgium.

Different probiotic feed additives have been proposed to control *Salmonella* Typhimurium (ST) infection at farm level and reduce the risk for human salmonellosis. The present study investigated the efficacy of three probiotic feed additives to reduce ST infection in experimentally challenged piglets.

After weaning (28 days), 45 *Salmonella* negative piglets were randomly divided into 5 groups; 1. Negative control: no feed additive (n=5), 2. Positive control: no feed additive (n=10), 3. Probiotic A: 2×10^6 CFU/g feed (n=10), 4. Probiotic B: 2×10^6 CFU/g feed (n=10), 5. Probiotic A: 5×10^5 CFU/g feed (n=10). Pigs were fed *ad libitum* with the experimental feed from arrival (day-7) until euthanasia (day42). One week after arrival (day0), pigs from group 2, 3, 4 and 5 were orally inoculated with 2×10^8 CFU/mL nalidixic acid resistant ST strain 112910a (1mL/pig). Individual fecal samples, and at necropsy, cecum contents, colon contents and ileocecal lymph nodes were collected to evaluate the presence of *Salmonella* before and after inoculation (based on ISO6579:2002). Blood samples, collected before and after inoculation, were analyzed by ELISA (IDEXX Swine *Salmonella* Ab Test), using the cut-off value: $S/P \geq 0.25$ = positive.

Before inoculation, all fecal samples tested negative for *Salmonella*. In group 2, 3, 4 and 5, respectively, 100-100-100-90% of all pigs tested bacteriologically positive at least once after inoculation. 80-90-89-80% of the pigs in, respectively, group 2, 3, 4 and 5 tested serologically positive at day42. No significant differences were detected between the inoculated groups for: serology (#positive animals and mean S/P-ratio), excretion (#positive animals), lymph nodes

(#positive after enrichment, #positive without enrichment and mean CFU-count). The #positive cecum contents samples significantly differed between the inoculated groups ($p=0.026$); group 3 > group 2 ($p=0.033$).

Under the present conditions, the probiotic feed additives did not significantly influence the serological response, excretion and colonization of ST after experimental infection.