

Topic No. 2 – Foodborne pathogen epidemiology and control strategies; and
No. 1 – Public health issues and risk assessment

**DIGESTIVE MICROBIOTA CHANGES DURING APPLICATION OF
AN EFFECTIVE, FEED PRESENTATION BASED, MITIGATION
OPTION AGAINST SALMONELLA SHEDDING IN PIGS**

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If some studies have attempted to mitigate the *Salmonella* spp. excretion in pigs by feed related interventions, none clearly demonstrated the impact of the presentation (mash or pellet and particular size). Thus this study aimed to determine if the modification of the pigs feed presentation alone can lower the *Salmonella* spp. excretion. To do so, 144 eight weeks aged piglets, previously confirmed as homogeneously in contact with *Salmonella* during post-weaning, were given diets that varied only by the particle size (500, 750 or 1250µm) and/or the texture (mash or pellet). During the fattening period, they were individually sampled for blood and feces collection after 0, 21, 46 and 88 days of specific diet. Colons and caecums content were also sampled at the slaughterhouse. There were more pigs from the pellet groups shedding *Salmonella* spp. in their feces after 21 (p=0.012) and 88 days (p=0.002) and in their colon content at slaughter (p=0.026) than from the mash feed groups. In contrast with the literature, no seroconversion significant differences were found between the different groups. Real-time PCR analyses revealed that pigs from the pellet groups had significantly less *Bifidobacterium* spp. in their feces

than those from the mash feed groups at day 21. At the same date, a metagenomic analysis of the fecal microbiota by non-directed amplification of 16S rDNA and Ion TorrentTM sequencing revealed a significantly lower representation of the *Spirochaetes* phylum in the feces of pigs from mash feed groups. It also indicated significantly more bacteria of the *Fibrobacteres* phylum and less chloroplast in the feces of pigs from pellet feed groups. Correlation between *Salmonella* mitigation efficiency and changes in microbiota will be tested. Our data are compatible with the fact that a mash feed would promote a healthier gut microbiota while pellet feed would promote better digestion efficiency.

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