Reducing the risk of food borne pathogens (Campylobacter) in pre-slaughter piges vis short-time feeding with prebiotics

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Introduction: Pigs constitute a natural reservoir of Campylobacter spp., but the role of pork in human Campylobacter infections is expected to be minor as pigs typically are found to host C. coli rather than C. jejuni, which is the major cause of human Campylobacter infections. However, application of intensive detections methods on organic weaning pigs has shown that C. jejuni rather often co-exists with C. coli. A potential means to control pathogens is inclusion of non-digestible oligosaccharides (prebiotics) in the diet. Prebiotics act by stimulating the growth of fermenting bacteria beneficial for the gastrointestinal health of the host. This study aimed to assess a possible Campylobacter spp. reducing effect of feeding pigs with lupin and chicory just prior to slaughter.

Methods: A total of 48 pigs of initial 90 kg live weight were fed with either I) control (100% organic concentrate (OC), II) chicory (10% chicory, 90% OC) or III) lupine (25% blue lupine seed, 75% OC) for 1 week (24 pigs) or 2 weeks (24 pigs) before slaughter. The Campylobacter spp. level was determined in rectal faecal samples collected at time 0, 1 and 2 weeks by direct plating of ten-fold dilution series of faeces (1 g) on charcoal-cefoperazone-deoxycholate agar plates (mCCDA).

Results: All pigs excreted Campylobacter spp. The effect of feeding with oligosaccharides depended on the initial Campylobacter excretion level. However, after one week on the lupin diet, pigs excreted mean log 2.9 CFU/g faeces compared to mean log 4.1 CFU/g in control and chicory pigs. When the feeding period was extended to two weeks, a Campylobacter-reducing effect was non-apparent.

Discussion: The short-term inclusion of lupin in pigs’ diet prior to slaughter reduced the excretion level of naturally occurring Campylobacter and this seems promising for a potential reduction of other food borne pathogens in pre-slaughter pigs such as Salmonella spp. This would infer a lower risk of carcass contamination at slaughter and then a lower infection risk associated with consumption of pork.