FFF explores canine probiotics — Can we emphasize the wellbeing of dogs and their owners?

Pets have been discovered with an increasing amount of similar diseases with humans. Also, microbial exchange between pets and family members occurs where the microbiota adapts and unifies within the family. In families with pets the major microbial load is from the pet (Song et al 2012). This raises the question what kind of a microbiota do our pets maintain and can we influence it?

Five lactic acid bacteria (LAB) species have been isolated and detected from healthy Finnish pet dog faeces: *Lactobacillus fermentum* NCIMB 41636, *Lactobacillus mucosae*, *Lactobacillus plantatuum* NCIMB 41638, *Lactobacillus rhamnosus* NCIMB 41640, and *Weissella confuse*. Each healthy dog individual was detected with one predominant LAB strain, whereas LAB strains weren’t found in dogs with intestinal problems. Strains from healthy individuals proved to survive in the gut for several hours as well as were resistant to bile acid and where able to stay alive in canine intestine for at least seven days (Beasley et al 2006). These canine-originated LAB strains are capable to alter canine intestine microbiota enhancing the growth of an endemic *Lactobacillus* strain. This phenomenon was seen in mums and their pups for at least for 14 days.

*L. fermentum* NCIMB 41636, *L. plantatuum* NCIMB 41638, and *L. rhamnosus* NCIMB 41640 prevent some canine-originated pathogens, such as *Enterococcus canis* CCUG 46666T, *Clostridium perfringens* DSM 756 ja *Salmonella enterica* ser Typhimurium ATCC 14028, to adherence to mucus *in vitro* (Grzeskowiak et al 2014). A randomized double-blinded *in vivo* study (n=60) resulted in settling diarrhea in three days compared to a seven-day outcome of the placebo. After the seven-day intake of canine-originated LAB strains qPCR revealed pathogen amounts diminished. Pet owners also reported less vomiting and flatulence in the LAB group than in the placebo group (Gómez-Gallego et al 2016).

Antibiotic treatment is known to alter canine intestinal microbiota for several years emphasizing the importance of a long enough probiotic intake after each antibiotic treatment. Canine-originated LAB are sensitive to antimicrobials (Beasley et al 2006). This is an advantage when treating big canine populations, because a Dutch group noted an antibiotic resistant *Enterococcus faecium* strain, which may be employed as a probiotic, has caused hospital-acquired infections originated from dogs via owners (Damborg et al 2009).

Pet microbial enhancing has attracted positive attention also in family members (Nermes ym 2013). Taking care of pet microbiota we may to influence whole family microbiota and immune system. We continue research on this area also in the future.
References


Grzeskowiak L., Pathogen exclusion properties of canine probiotics are influenced by the growth media and physical treatments simulating industrial processes. J Appl Microbiol 2014, 116(5); 1308-1314.

