Prospects for the use of probiotic bacteria in the treatment of gastrointestinal diseases in dogs

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Abstract

Probiotic bacteria have been known for over a century. Probiotics are defined as direct feed microbials or microbial cell preparations with a beneficial effect on the health and well-being of the host. Lactobacillus, Bifidobacterium and Enterococcus strains are used most frequently as probiotics. In recent years, their use has increased significantly in both human and veterinary medicine. These bacteria play a significant role in the prevention and treatment of many diseases. Lactobacillus and Enterococcus are capable of colonizing the alimentary tract in dogs. As a result, probiotic bacteria take an important part in the treatment of chronic inflammatory bowel disease.

Key words: probiotic, Enterococcus sp., dog, gastrointestinal disease.

What are probiotics?

Probiotics are single or mixed cultures of live or dead microorganisms exerting a favorable effect on human and animal health (Chien-Chang and Walker 2005, Meyers 2007, Vasijevic and Shah 2008). The growth of beneficial bacteria is promoted by additives known as prebiotics, i.e. indigestible food components (oligosaccharides: monosaccharides – MOS, fructooligosacharides – FOS, inulin and lactulose) which produce a positive effect on the host by stimulating the selective growth of probiotic bacteria (Weese 2002, Losada and Olleros 2002, Twomey et al. 2003). There are certain criteria that must be met if a given microorganism is to be termed probiotic. The most important among them are the ability to survive long-term bile exposure, to adhere to the surface of intestinal epithelial cells, to colonize the digestive tract and to stabilize intestinal microflora. Another key criterion is the lack of pathogenicity. In addition, probiotic bacteria should be species-specific and have a beneficial influence on the host (Biourge et al. 1998, Kander and Depta 2001, Weese and Anderson 2002, Biagi et al. 2007, Meyers 2007, Vasijevic and Shah 2008).

Lactobacillus, Bifidobacterium and Enterococcus strains are most frequently used as probiotics in human and veterinary medicine. Lactobacillus sp. (Fig. 1) are Gram-positive, non-spore-forming, microaerophilic rods producing large amounts of lactates, which lower pH in the intestine and convert sugars into lactic acid. Lactobacillus sp. rapidly colonize the intestinal epithelium and inhibit the growth...