

Prevention of listerial growth with SafePro[®] B-FM

Cooked meat products, which are sliced or diced after cooking, are highly prone to microbial contamination during the slicing and packaging process. In addition the contaminating microorganisms will easily proliferate during storage due to the almost sterile surface of the cooked meat product. In particular, the pathogenic bacterium *Listeria monocytogenes* is of much concern. *L. monocytogenes* grows very well in a broad temperature range and is quite resistant to many preservative means, whether in cooked meat products or in cured, raw products. Infectious dosage of *L. monocytogenes* may lead to listeriosis, which is responsible for almost one third of all food borne disease-related deaths (American Meat Institute, 2002).

The growth of *L. monocytogenes* in cooked meat products and in cured, raw products is usually prevented by a very high factory hygiene, a combination of different chemical additives and physical hurdles, such as low temperature storage and modified atmosphere packaging. However, chemical additives often add an undesirable off-flavor to the product in the efficient doses and also require labeling, whereas bioprotective culture is an all natural solution. B-FM has been shown to inhibit the natural spoilage flora of bacteria in many different meat products and to hinder the growth of *L. monocytogenes*. The bioprotective effect of B-FM is primarily due to competitive exclusion and a slight production of organic acids. The effect has been documented in numerous trials both at Chr. Hansen in-house and in the meat industry.

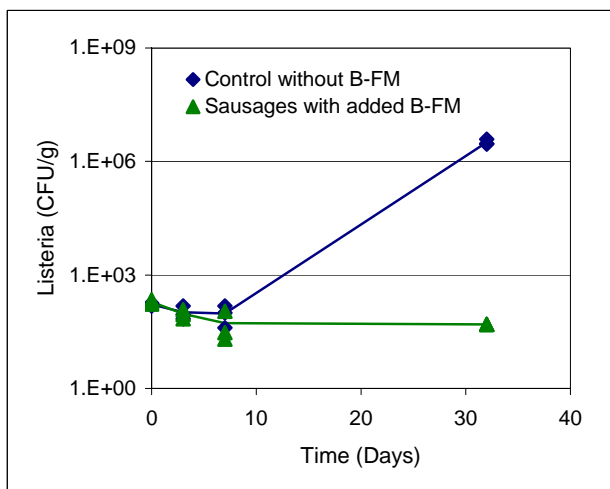


Figure 1. Number of *Listeria monocytogenes* in hotdog sausages applied with B-FM, vacuum-packed and stored at 7°C.

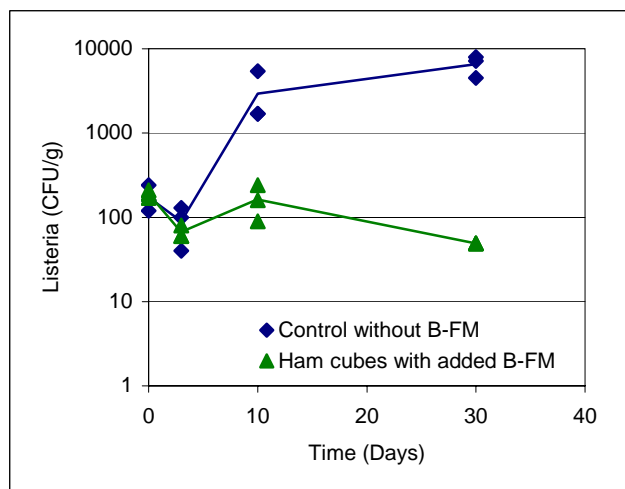


Figure 2. Number of *Listeria monocytogenes* in cooked ham cubes applied with B-FM, vacuum-packed and stored at 7°C.

B-FM consists of the homofermentative *Lactobacillus sakei* BJ-33 and a strain of *Staphylococcus xylosus* and is particularly recommended for bioprotective purposes in cured, raw meat products where color and flavor formation is of importance. However, it also works very well for cooked meat products such as frankfurters and ham cubes, since it prevents growth of contaminating bacteria as well as helps stabilizing the product color during storage. Both strains in B-FM have been isolated from meat products by Chr. Hansen A/S and is approved by the Danish authorities for bioprotective use.

Figure 1 and 2 show the results from an industrial trial where a suspension of B-FM was sprayed onto cooked hotdog sausages or cooked ham cubes before packaging. B-FM significantly controlled the development of *L. monocytogenes* during cold-storage in both cases.