

Public Abstract

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Title: Probiotic-Supplemented Soy Bar Effects on Resistance to Infection by *Listeria monocytogenes*

Probiotics are living microorganisms that help regulate the gastrointestinal tract. The objective of this project was to investigate the benefits of probiotics and their inhibitory effect on *Listeria monocytogenes* EGD. The well diffusion assay was conducted to screen the probiotics for inhibition of *L. monocytogenes* EGD. A diet was created out of a soy protein bar supplemented with the probiotics to be used in our in vivo test using a mouse model.

Three groups of mice were fed for two weeks with three different diets, one diet each, Control diet with no probiotic, ADH diet with *Lactobacillus acidophilus* ADH, and B6 diet with *Bifidobacterium animalis* B6. Each group was subdivided into two different groups, one of them would be challenged with *L. monocytogenes* EGD and the other group would not (control group). After 14 days of feeding, the mice were challenged orally with $\sim 10^8$ CFU/ml *L. monocytogenes* EGD. At day 3 post-infection, the mice were euthanized. Of the samples collected, the colon and cecum were tested for probiotic concentration. The spleen and liver were tested for the presence of *L. monocytogenes*. In the first replication, a half a log reduction of *L. monocytogenes* EGD in the liver was observed in the *Bifidobacterium* group as compared with the control group, but no significant reduction in the pathogen was seen in the *Lactobacillus* group for any of the samples collected. For the second trial, a one log reduction of *L. monocytogenes* EGD in the liver was achieved in the *Bifidobacterium* group, but at the same time, a one log reduction of the pathogen in the spleen was also observed in the *Lactobacillus* group. We also collected evidence showing that the probiotics colonized the colon and the cecum with concentrations of $\sim 10^7$ CFU.

According to our results we believe that the probiotic supplemented soy protein bar holds promise to prevent listeriosis.