Development of probiotic peanut butter and peanut spread

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Mortality resulting from diarrhea, especially that occurs in children younger than 5 years of age ranks 3rd among all deaths caused by infectious diseases worldwide. Probiotics such as *Lactobacillus rhamnosus* GG are clinically shown to effectively reduce the incidence of diarrhea in children. A food substrate is one of the major factors regulating the colonization of microorganisms in human gastrointestinal tracts. Peanut butter is a nutritious, low-moisture food that could be a carrier for probiotics. In this study, we observed the influence of storage conditions and product matrixes on the survival of *L. rhamnosus* GG. Cells of *L. rhamnosus* GG were inoculated into full fat or reduced fat peanut butter at 10^7 CFU/g. Inoculated peanut butter was stored at 4, 25 or 37 °C for 48 wk. Samples were drawn periodically to determine the populations of *L. rhamnosus* GG. Results showed that there was no significant decrease in the viable counts of *L. rhamnosus* GG in products stored 4 °C. The survivability of *L. rhamnosus* GG decreased with increasing storage temperature and time. Fat content of the products did not significantly affect the survival of *L. rhamnosus* GG except at 37 °C. Populations of *L. rhamnosus* GG were preserved at > 6 log level in products stored at 4 °C for 48 wk and at 25 ^{o}C for 23-27 wk. At 37 ^{o}C, the 6 log level could not be maintained for even 6 wk. Research suggests that peanut butter stored at 4 and 25 ^{o}C could serve as vehicles to deliver probiotics.