Viability of lactic acid bacteria and *bifidobacteria* in fermented soymilk after drying, subsequent rehydration and storage.

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To develop a probiotic dietary adjunct, soymilk fermented with various combinations of lactic acid bacteria (*Streptococcus thermophilus* and *Lactobacillus acidophilus*) and *bifidobacteria* (*Bifidobacterium longum* and *Bifidobacterium infantis*) was subjected to freeze-drying and spray-drying. Survival of the starter organisms during the drying process, subsequent rehydration at different temperatures and during a 4-month period of storage under different storage conditions was examined. After freeze-drying, lactic acid bacteria and *bifidobacteria* exhibited a survival percent of 46.2-75.1% and 43.2-51.9%, respectively, higher than that noted after spray-drying. Regardless of the drying condition, *S. thermophilus* showed a higher percentage of survival than *L. acidophilus*, while *B. longum* survived better than *B. infantis*. Further study with soymilk fermented with *S. thermophilus* and *B. longum* revealed that the freeze-dried and spray-dried fermented soymilk rehydrated at 35-50 degrees C and 20 degrees C, respectively, was optimum for the recovery of the starter organisms. Both *S. thermophilus* and *B. longum* survived better in the freeze-dried than the spray-dried fermented soymilk during storage. A higher percent of survival was also noted for both the starter organisms when the dried fermented soymilk was stored at 4 degrees C than 25 degrees C. Holding the dried fermented soymilk in the laminated pouch enabled *S. thermophilus* and *B. longum* to exhibit a higher percentage of survival than in the deoxidant- and desiccant-containing glass or polyester (PET) bottle. Among all the packaging materials and storage temperatures tested, starter organisms were most stable in the dried fermented soymilk held in laminated pouch and stored at 4 degrees C. Under this storage condition, *S. thermophilus* and *B. longum* showed a survival percentage of 51.1% and 68.8%, respectively, in the freeze-dried fermented soymilk after 4 months of storage. Meanwhile, *S. thermophilus* and *B. infantis* in the spray-dried fermented soymilk showed a survival percent of 29.5% and 57.7%, respectively.

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