Viability Test of Probiotic Strains in Commercial Cultured Milk Drinks upon Reaching Consumers

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ABSTRACT

The regulatory standard set by food authorities for cultured milk drinks is 10^6 $CFUml^{-1}$. It is therefore essential to monitor the viability of probiotic bacteria during the storage time of cultured milk drinks. This study therefore investigated the effect of the storage time on the viability of the probiotic strains in commercial cultured milk drinks before consumption by using various differential and selective media for reliable enumeration of *Lactobacillus acidophilus, Lactobacillus casei,* and *Bifidobacterium* spp. The viability test was performed at T_1 (two weeks before the expiry date), T_2 (the expiry date), and T_3 (one week after the expiry date). Five (5) samples of different commercial cultured milk drinks were used, i.e., sample Y, V, N, Q, and S. Both samples Y and V showed significant decrease ($P<0.05$) up to 0.117 $\log_{10}$ CFU/ml and 0.248 $\log_{10}$ CFU/ml respectively from T_2 to T_3. A huge significant decrease ($P<0.05$) up to 1.519 $\log_{10}$ CFU/ml was found in sample N from T_1 to T_2. Sample S showed a significant decrease ($P<0.05$) in viability level up to 0.983 $\log_{10}$ CFU/ml from T_1 to T_2 and up to 1.159 $\log_{10}$ CFU/ml from T_2 to T_3. Sample Q showed no colony growth in all media. Although the viability in both samples Y and V decreased over time, it was still above the standard requirement which is 6.000 $\log_{10}$ CFU/ml. The viability in samples N, S, and Q did not meet the suggested requirement of 6.000 $\log_{10}$ CFU/ml, even at T_1. The overall results presented in this study showed that the viability level of probiotic bacteria in the commercial cultured milk drinks decreased as the storage time increased.