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

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2007

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ABSTRACT

The regulatory standard set by food authorities for cultured milk drinks is $10^6$ CFU/ml\(^{-1}\). 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.