

Improving the viability and stability of probiotic starter culture and the quality of fermented milk using some food additives

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The present investigation studied the effects of L-Ascorbic acid, casein hydrolysate, whey protein concentrate (WPC), or glucomacropeptide (GMP) on the viability of *Streptococcus thermophilus*, *Lactobacillus casei*, and *Bifidobacteria breve* (CBT) starter culture in fermented milk during manufacture and storage period. Changes in chemical and viable total bacterial count were monitored during manufacture and storage at 5°C for 21 days of fermented milk. Data showed that the incubation time that was needed to reach pH 4.5 was considerably affected by the added ingredients. Also, the drop in pH or the increase in acidity of this fermented milk was dependent on the added ingredients. Results showed that addition of L-Ascorbic acid, casein hydrolysates, whey protein concentrate or glucomacropeptide improved the viability of *bifidobacteria* and *Lactobacillus casei* (*L. casei*) and *Streptococcus thermophilus* (*S. thermophilus*) starter culture in general compared to the control one. However, the survival of *bifidobacteria* was greatly reduced during storage of fermented milk, except for products containing CH, WPC and GMP in which viable counts remained at $>10^6$ cfu/g after 21 days of storage at 5°C. No clear difference was observed between L-Ascorbic acid treatment and the control in the effect on the fermented milk characteristics compared to the other treatments. Supplementation of the fermented milk with CH, WPC and GMP improved the viscosity and other rheological properties and reduced the curd syneresis rate. Fermented milk fortified with GMP showed higher lactase utilization and had lower lactose concentrations during storage period than other treatments.

Biography

Hassan A.M. El-Demerdash has completed his Ph.D at the age of 29 years from Kiel University, Germany and postdoctoral studies from BAFM institute, Kiel, Germany. He has published more than 27 papers in reputed journals and, His work as Ass.Prof. at Dept. of Food and Nutrition Sciences, College of Agricultural and Food Sciences KFU, KSA.

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