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Performance and consumer acceptance of probiotic yogurt made from dehydrated yogurt base

Anthony N Mutukumira

Massey University, New Zealand

Abstract

The development of dehydrated food bases, such as yogurt dry mixes has created opportunities for the delivery of probiotics such as *Lactobacillus* (*Lb.*) *acidophilus* NCFM. Such products bring convenience to the consumer as they give flexibility during preparation and quantities prepared. Most of the dehydrated yogurt mixes are used at the household level using commercial domestic kits. The yogurt mixes are normally packaged in modified atmosphere packages to preserve the viability of yogurt cultures during storage at ambient temperature. There is scanty information, if any, on the characteristics of liquid yogurts prepared from dehydrated yogurt mixes using domestic commercial kits. This study investigated the characteristics of probiotic liquid yogurt made from dehydrated yogurt bases (DYBs) containing *Lb. acidophilus NCFM* that had been stored for nine weeks at ambient temperature (20 °C). Three DYBs at two fat levels were fermented at 43 °C for 8 h and then refrigerated for 2 weeks. pH of fresh and stored yogurt samples were measured and analyses of viable cell counts of NCM and yogurt bacteria (LAB) counts, lactic acid, texture, viscosity, and syneresis were conducted.. Consumer acceptance of the products was conducted using a 9-point hedonic scale. Concomitant increase of sigmoidal growth of LAB and acidity was observed during yogurt fermentation. Although firmness of the yogurt samples increased, there were no significant changes in viscosity and syneresis index. Overall, low fat yogurt performed better than high fat samples. Meanwhile, reduction of LAB counts, probably caused by post-acidification was observed, but cell counts still remained high (>10^7 cfu/mL) after 2 weeks storage. Principal Component Analysis showed that flavour, sweetness, and sourness were the main descriptors that influenced consumer acceptance of yogurt; where majority of consumer panelists (76%, n= 77) liked the flavoured and sweetened yogurts.

Biography

Dr. Tony Mutukumira gained his PhD at the Norwegian University of Life Sciences, Norway following research on lactic dairy fermentations. Tony started his teaching career in 1996 at the University of Zimbabwe, rising to Senior Lecturer/Head of Institute of Food Nutrition and Family Sciences. Since then, Tony has also spent time at universities in the United Kingdom and Swaziland, before joining the Institute of Food Nutrition Human Health, NZ, where he teaches food technology, food microbiology, preservation, safety and quality. His research interests include food fermentations with special interests in the technology of indigenous products, probiotics and functional foods, product development, and emerging preservation technologies such as high pressure processing (HPP). Tony is a member of several professional bodies including the New Zealand Institute of Food Science and Technology, South African Association of Food Science and Technology, South African Society of Dairy Science and Technology, IUFoST Committee on Distance Education. He is current Secretary of the Food Safety Working Group of CIGR. Tony has published over sixty papers in scientific journals and, presented and chaired at several international conferences.