

## Viability of probiotics in flavoured yoghurts made with different starter culture during storage

■ MADHU, M. SHIVA PRAKASH AND ANITA KOCHHAR

**SUMMARY :** Six different yoghurts were prepared with mango pulp and pineapple essence and sugar combination with *Lactobacillus bulgaricus*, *Streptococcus thermophilus*, *Lactobacillus acidophilus*, *Lactobacillus sporogens*, *Bifido bifidum*, *Bifido longum* and *Bifido infantis* as starter culture. Three types of yoghurts were developed under each flavours, with different combination of probiotics and termed as A<sub>1</sub>, B<sub>1</sub>, C<sub>1</sub>, A<sub>2</sub>, B<sub>2</sub> and C<sub>2</sub>. A<sub>1</sub>, B<sub>1</sub>, C<sub>1</sub> were mango yoghurts and A<sub>2</sub>, B<sub>2</sub> and C<sub>2</sub> were pineapple yoghurts. Statistically, the significant difference were found in viable counts from 7<sup>th</sup> day to 14<sup>th</sup> day (P<0.05) in all yoghurts except in A<sub>2</sub> and C<sub>2</sub>. The difference of viable counts from 0 day to 7<sup>th</sup> day was also found to be significant (P<0.05) in A<sub>2</sub> and C<sub>2</sub>. No significant difference was found from 14<sup>th</sup> day to 30<sup>th</sup> day in all yoghurts as 90- 96 per cent viability loss of probiotics was observed by 14<sup>th</sup> day in all yoghurts. Pineapple yoghurt with probiotic blends of *Lactobacillus bulgaricus*, *Streptococcus thermophilus* and *Lactobacillus sporogens* i.e., B<sub>2</sub> had higher viability, among the different types of yoghurts developed.

**KEY WORDS :** Analysis of variance (ANOVA), Complete randomized design (CRD), A- *Lactobacillus bulgaricus*, *Streptococcus thermophilus*, B-*Lactobacillus bulgaricus*, *Streptococcus thermophilus*, *Lactobacillus sporogens*, C- *Lactobacillus bulgaricus*, *Streptococcus thermophilus*, *Lactobacillus*, *acidophilus*, *Bifido bifidum*, *Bifido longum*, *Bifido infantis*

**How to cite this paper :** Madhu, Prakash, M. Shiva and Kochhar, Anita (2012). Viability of probiotics in flavoured yoghurts made with different starter culture during storage. *Internat. J. Proc. & Post Harvest Technol.*, 3 (2) : 286-290.

**Research chronicle : Received :** 21.06.2012; **Revised :** 12.10.2012; **Accepted :** 22.11.2012

Yoghurt is considered by nutritionists to be a very nutritious and healthy food compared to milk. Probiotic cultures are live bacteria which help in better absorption of nutrients. They play an important role in reduction of serum cholesterol, alleviation of lactose intolerance, reduction of diarrhea, prevention and suppression of colon cancer, stimulation of the immune system etc. Yoghurt is prepared by fermenting milk with starter cultures containing different types of probiotics, normally *streptococcus thermophilus* and *lactobacillus bulgaricus*. Use of different probiotic blends in combination have several health benefits. Lactic Acid Bacteria (LAB) and bifidobacteria are the

most common types of microbes used as probiotics. Probiotics are commonly consumed as part of fermented foods with specially added active live cultures, such as in yoghurt, soy yoghurt, or as dietary supplements. The introduction of yoghurt with added probiotics could play a significant role in national health care programs especially in developing countries, where diarrhoea and gastrointestinal problems are common. The increase in the per capita annual consumption of yoghurt in the majority of the countries has been attributed to both the ever-increasing availability of fruit or flavoured yoghurt, and to the diversity of presentations of the product. Although the main choice of any probiotic microbial strain to be used as a starter culture or a blend with a starter culture is based on the health aspects beneficial to humans (Gardiner *et al.* 2002). The aim of the study was to investigate the changes in microbiological properties in mango and pineapple yoghurt made with different probiotic cultures during storage.

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### EXPERIMENTAL METHODS

The raw material *viz.*, double toned milk, powdered sugar,