

## THE EFFECTIVENESS OF DIFFERENT COMBINATIONS OF COMMONLY USED COMMERCIAL STARTER CULTURES IN SET YOGHURT PRODUCTION

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Type of starter culture used is one of the most influential factors affecting the final quality of yoghurt. YC (*Streptococcus thermophilus* and *Lactobacillus delbrueckii* sub sp. *bulgaricus*) and AB (*S. thermophilus*, *Bifidobacterium animalis* sub sp. *Lactis* and *L. acidophilus*) are the most commonly used starter cultures by the yogurt manufacturers in Sri Lanka. In general one of the above cultures is used in yogurt manufacturing. It would be desirable to combine these two cultures in yoghurt manufacturing in order to achieve the beneficial effects of both types of cultures. This study was conducted to develop a set yogurt by a combination of above two starter cultures and to evaluate the sensory, physico-chemical (pH and titratable acidity) and microbial qualities (yeast, mould and coliform counts) of the product, over 30 days of storage at 4 °C. Series of trial and error methods were employed to develop yoghurts with different combinations of YC and AB cultures. YC: AB 3:1 combined culture sample was selected as the best and there were significant differences ( $p < 0.05$ ) in taste, odour, colour, texture and overall acceptability compared to the different set yoghurts available in the market. The pH of the YC: AB 3:1 combined culture yoghurt sample has significantly varied ( $p < 0.05$ ) over the storage time. Similar trend was observed for the titratable acidity. Coliform, yeast and mould counts of YC: AB 3:1 combined culture yoghurt sample were within the acceptable limits, according to the SLS specifications. However, appearance of the final product was poor after 30 days of storage. Therefore, incorporation of YC: AB in 3:1 combination in set yoghurt is advisable and the product can be kept for 30 days in refrigerated condition without major sensorial, physico-chemical and microbial quality deterioration.

**Key words:** Post-acidification, Set yoghurt, Starter culture