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Quality Evaluation of Set Yoghurt Supplemented with Turmeric Powder (*Curcoma longa*.L) During Storage Period

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Abstract

Curcumin is the main active ingredient in turmeric responsible for turmeric's numerous activities. Known by its anti-oxidative, anti- microbial and anti-inflammatory properties and as a cancer and chemo preventive agent. This study was carried out to assess the effect of supplementing set yoghurt made from cow's milk with different levels of turmeric powder 0 % (plain yoghurt), 0.25 % (T1), 0.5 % (T2) and 0.75 % (T3) on some physico-chemical properties, microbiological quality and organoleptic characteristics at 1, 5, 8 and 12 days of refrigerated storage (5Co). The results revealed that the effect of addition of turmeric powder was significant on all physico-chemical properties ($p < 0.05$), except for the lactose content. In general the pH value of the set yoghurt was relatively higher in turmeric yoghurt compared with plain yoghurt and decreased with the increased level of turmeric powder with concomitant decrease in titratable acidity in turmeric yoghurt. The turmeric yoghurt with 0.5 % and 0.75 % had increased significantly ($p < 0.05$) the fat content of yoghurt in comparison with plain and 0.25 % samples during the storage period. Furthermore, the higher level of turmeric concentrations (0.75 %) increased the ash content significantly ($p < 0.05$) compared with the control samples and yoghurt with low and medium turmeric concentrations (0.25 % and 0.5 %). On the other hand, the increase of turmeric powder level was associated with decrease in protein content during the storage period.

The yoghurt samples supplemented with 0.75 % turmeric powder secured the best microbial profile with resultant lowest total viable bacteria count (TVBC) log10 (5.42), Lactobacillus count (LBC) log10 (5.11) cfu ml^{-1} and complete absence of coliform bacteria. The sensory analysis revealed that the yoghurt with 0.25 % turmeric powder recorded the best acceptance among panelist compared to plain yoghurt and other concentrations of turmeric yoghurt.

The study concluded that addition of turmeric powder to set yoghurt improved chemical, organoleptic and microbiological qualities of the product resulting in high consumption acceptance.

Keywords: Chemical characteristics, curcumin, microbiological aspects, sensory evaluation, Set yoghurt

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