Assessing the Effect of Incorporating Kithul(*Caryotaurens*) Flour on Stabilizing Ability and Sensory Properties of Set-type Yoghurt

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Abstract

Kithul flour is the water soluble carbohydrates extracted from the pith of Kithul tree (*Caryota urens*). It has high level of polysaccharides which may possess stabilizing ability and may be useful to replace the existing stabilizers (gelatin) in set-yoghurt manufacturing. Presently, adding stabilizers as a blend is more widely used in the dairy industry and it leads to overcome limiting properties associated with a specific compound. Therefore, this study was carried out to assess the effect of incorporating water-soluble carbohydrates of Kithul on stabilizing ability and sensory properties of yoghurt. Fresh cow milk, Sugar, Kithul flour, gelatin, skim milk powder, starter culture (YC 350 CHR Hansen) and Kithul flavor were used to prepare the yoghurt. Kithul flour levels changed as 0.9%, 1.2%, 1.5% and 1.8%. Each treatment was replicated three times and evaluated for sensory properties such as mouth feel, taste, texture, colour, odor and overall acceptability using trained sensory panel. Then, the selected level was used to find the best ratio of kithul flour: gelatin. The gelatin level was changed as 0.1%, 0.2%, 0.3% and 0.4% with the selected level of kithul flour. Tests were carried out to find out the fat content, total solid content, titratable acidity and pH, yeast &mould and coliform count and compared with existing yoghurt. Data were analyzed using one way ANOVA (CRD) and Friedman non-parametric test in MINITAB 14. Results of this study support that the use of 1.5% (w/v) kithul flour was able to replace 0.7% (w/v) gelatin without affecting the texture, colour, taste and odour of yoghurt having 27.7% of total solids. By that, the recommended percentage of gelatin was reduced from 1% to 0.3% .In addition to that, incorporation of kithul flour in to yoghurt reduced post fermentation acidification compared to the control during refrigerated storage. As the specifications of final product (titratable acidity and microbial population) were within the prescribed SLS standards, the product had storage life of thirty days at 4 ±1 ^{0}C without any quality deterioration.