



EFFECT OF PECTIN ON THE PHYSICOCHEMICAL, TEXTURAL AND SENSORY PROPERTIES OF LOW-FAT YOGHURT.

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ABSTRACT

Low-fat yoghurt has been defined to contain fat content not more than 2.0 per cent as per The Code of Federal Regulations, FDA, U.S. Nevertheless, the reduced content of fat affects the physicochemical properties of yoghurt by weakened texture, syneresis, poor body and sensory quality. This is due to fat globules that govern the protein linkages are responsible for the yoghurt's firmness and texture. The objectives of this study are to evaluate the physicochemical and textural properties of the low-fat yoghurt enriched with pectin and to determine the sensory properties and consumer acceptance of low-fat yoghurt with pectin. Pectin helps in improving the gel characteristics, rheology, texture and microstructure of set yoghurt through interactions with casein network. Six different concentration of low-methoxyl pectin (LMP) have been added to the samples (0.2% - 1.2%). Analysis such as pH measurement, syneresis measurement, microbial analysis, viscosity measurement, texture measurement and scanning electron microscopy were carried out. The results from the analysis above were subjected to one-way ANOVA and post hoc Tukey's test. Moreover, for the sensory evaluation, Friedman test used in order to measure how the different concentration of pectin could affect each sensory attributes. Addition of LMP (0.4–1.0%) showed positive effect on quality of yoghurt with major attributes while a negative correlation of LMP added yoghurts can be seen with control low-fat set yoghurt. As a conclusion, the low-fat yogurt had positive effect due to the enrichment of the pectin when compared to the controlled low-fat yogurt.

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PROBLEM

- Consumers are more concern about their food intake and they start to avoid taking high-fat foods. Instead, consumers opt to buy low-fat or free-fat food products.
- Nevertheless, low-fat foods cannot retain the same physicochemical, textural and sensory qualities as high-fat foods especially dairy products. For instance, low-fat yoghurts.
- Low-fat yoghurts have weakened textural properties, production of syneresis and differ in terms of viscosity. This is because fat globules influence protein connections, which are responsible for the firmness and texture of yoghurt.



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OBJECTIVE

- To determine the effect of pectin on the physicochemical and textural properties of the low-fat yoghurt.
- To evaluate the sensory properties and consumer acceptance of low-fat yoghurt enriched with pectin.



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IDEAS AND DISCUSSION

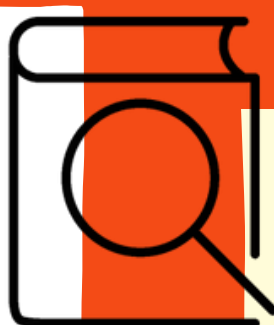
- Pectin has excellent water binding and gel forming properties even at low concentration. It acts as a thickening agent and as a stabilizer and health-promoting functional ingredient in yoghurt (Ciriminna et al., 2016).
- It has been shown that pectins reduce the post-prandial glycaemic responses and have recognized potential for the treatment and prevention of diabetes (Muñoz-Almagro et al., 2021).
- Pectin or other hydrocolloids have also been reported to result in improvements of physicochemical properties of set yoghurts by enhancing bacterial growth due to the presence of soluble solids (Xu et al., 2019).



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EXPECTED RESULT

- Addition of pectin expected to result in improved physicochemical, textural and sensory properties of low-fat yoghurt.
- The sensory liking and consumer acceptance of low fat yoghurt enriched with pectin also expected to be determined through sensory evaluation.
- Addition of pectin in low-fat yoghurt is expected to increase firmness



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POTENTIAL APPLICATION

This study is expected to provide alternative methodology to the dairy industry for improving the physicochemical properties, textural properties and consumer liking of low-fat yoghurt.

