

DEVELOPMENT OF YOGHURT WITH CASSAVA ADDITION

By

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ENDORSEMENT

The project report entitled **Development of Yoghurt with Cassava Addition** by **Nik Soliha Farhana Bt. Nik Ahmad Kamil UK17947** has been reviewed and corrections have been made according to the recommendations by examiners. This report is submitted to the Department of Food Science in partial fulfillment of the degree of Food Science (Food Technology), Faculty of Agrotechnology and Food Science, Universiti Malaysia Terengganu.


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DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

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ABSTRACT

The main approach of this study was to develop yoghurt with acceptable properties by incorporating cassava into the formulation as the substrate for fermentation. Yoghurt was formulated by incorporating cassava with low-fat cow milk at five different percentages, which were formulation A (0% cassava), B (2% cassava), C (4% cassava), D (6% cassava) and E (8% cassava). Samples from each formulation were analyzed for physicochemical properties and sensory acceptance level. Besides that, microbiological analysis was also carried out to observe the viability of bacteria involved in this study upon fermentation. Cassava incorporation increased the carbohydrate, ash and fiber content, whereas protein and fat content in yoghurt were decreased significantly ($p \leq 0.05$). Yoghurt with 8% cassava addition obtained higher values for most of the physical properties including yellowness, viscosity, water holding capacity and texture (consistency and firmness) as compared to control (0% cassava). The viability of bacterial cultures was not affected by the incorporation of cassava in the formulation. For sensory evaluation, all formulations obtained similar color, aroma, viscosity, mouthfeel and overall acceptance level ($p > 0.05$). However, yoghurt with 8% cassava addition was the most accepted in terms of taste attribute among the samples. As a conclusion, the incorporation of cassava as part of the fermentation substrate has potential in the development of new variety of healthy yoghurt in the market.

ABSTRAK

Tujuan utama kajian ini adalah untuk menghasilkan yogurt dengan penambahan ubikayu di dalam formulasi sebagai substrat untuk fermentasi, dengan ciri-ciri yang boleh diterima. Yogurt telah diformulasikan dengan menambahkan ubi kayu dan susu lembu rendah lemak di dalam peratusan yang berbeza, iaitu formula A (0% ubi kayu, kawalan), B (2% ubi kayu), C (4% ubi kayu), D (6% ubi kayu) dan E (8% ubi kayu). Sampel dari setiap formulasi dikaji dari segi ciri fizik-kimia dan penilaian deria. Selain itu, ujian mikrob juga dilakukan untuk mengkaji kehadiran bakteria yang terlibat di dalam kajian ini semasa fermentasi. Penambahan ubi kayu meningkatkan kandungan karbohidrat, abu dan serat, manakala kandungan protein dan lemak menurun ($p < 0.05$). Yogurt yang ditambah dengan 8% ubi kayu memperoleh nilai yang tinggi untuk semua analisis fizikal termasuk kekuningan, kelikatan, kebolehan memegang air dan tekstur (konsistensi dan *firmness*), berbanding dengan kawalan (0% ubi kayu). Kehadiran pertumbuhan bakteria tidak berubah dengan penambahan ubi kayu. Semua formulasi yogurt memperoleh nilai skor warna, aroma, kelikatan, rheologi makanan dan penerimaan keseluruhan yang sama ($p > 0.05$) di dalam analisis penilaian deria. Walaubagaimanapun, penambahan 8% ubi kayu menunjukkan penerimaan yang paling tinggi untuk ciri rasa bagi semua sampel. Kesimpulannya, penambahan ubi kayu sebagai substrat untuk fermentasi mempunyai potensi di dalam penghasilan pelbagai jenis yogurt baru yang sihat di pasaran.