DEVELOPMENT AND CHARACTERIZATION OF BUBUR ASYURA INCORPORATED WITH ROSELLE (*Hibiscus sabdariffa Linn*) ON THEIR PHYSICOCHEMICAL AND MICROBIOLOGICAL PROPERTIES

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Development and characterization of 'bubur asyura' incorporated with roselle (Hibiscus sabdariffa Linn) on their physicochemical and microbiological properties / Norsharliza Ismail.

Lihat Sebelah

DEVELOPMENT AND CHARACTERIZATION OF 'BUBUR ASYURA' INCORPORATED WITH ROSELLE (*Hibiscus sabdariffa Linn)* ON THEIR PHYSICOCHEMICAL AND MICROBIOLOGICAL PROPERTIES

By
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Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Food Science (Food Technology)

DEPARTMENT OF FOOD SCIENCE
FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
UNIVERSITI MALAYSIA TERENGGANU
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ENDORSEMENT

The project report entitled **Development and characterization of 'Bubur Asyura' incorporated with Roselle (*Hibiscus sabdariffa Linn*) on their physicochemical and microbiological properties** by **Norsharliza binti Ismail,** Matric No. **UK16860** 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 requirement of the degree of Bachelor 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

Roselle has low pH and contained very powerful antioxidants called anthocyanin and vitamin C, which the potential for its use in improving final product properties and shelf life is explored. The incorporation of Roselle at 0%, 25%, 50%, 75% and 100% levels in sweet type 'Bubur Asyura' were evaluated for the pH, color, protein content, fat content, fiber content, moisture content, ash content, carbohydrate content and a range of sensory attributes using an acceptance test. Changes in microbiological quality (total plate counts, psychrotrophic counts and yeast and mould counts), chemical and physical quality (pH and color) in control sample (0% Roselle) and the most accepted samples (50% Roselle) were evaluated for each 3 days during chilled storage until spoilage were observed for both samples. The incorporation of Roselle has been found to improve the color and shelf life of 'Bubur Asyura'. The sensory evaluation highlighted significant differences ($p<0.05$) on taste and overall acceptance. The chemical composition showed the most accepted sample of 'Bubur Asyura' incorporated with 50% Roselle were higher in moisture and fiber content with 56.5% and 0.48% respectively and lower in protein, fat and carbohydrate content which were 2.53%, 2.27% and 37.5% respectively as compared to the control sample. Microbiological analysis showed that the shelf life of the most accepted sample was at day 22 which was longer than control sample (19 days) in chilled storage.

ABSTRAK

Roselle mempunyai pH yang rendah dan mengandungi bahan antioksida yang sangat baik iaitu 'anthocyanin' dan juga vitamin C, di mana potensi kegunaannya dalam membaik pulih ciri-ciri produk akhir dan jangka hayat makanan di kaji. Sebanyak 0%, 25%, 50%, 75% dan 100% jumlah peratusan Roselle dimasukkan ke dalam Bubur Asyura jenis manis dan setiap daripada sampel ini dikaji dari segi nilai pH, warna, kandungan protein, lemak, serat, lembapan, abu, karbohidrat dan julat penilaian deria dengan menggunakan ujian penerimaan. Perubahan pada kualiti mikrobiologi ('total plate counts', 'psychrotrophic counts' and 'yeast and mould counts') dan kualiti fizikal (pH dan warna) dalam sampel yang dikawal (0% Roselle) dan sampel yang mendapat penerimaan tertinggi (50% Roselle) dinilai pada setiap selang tiga hari sepanjang penyimpanan dalam suhu dingin sehingga kedua-dua sampel menunjukkan kerosakan. Hasil daripada pemasukan Roselle didapati keputusan warna dan jangka hayat bubur Asyura adalah lebih baik. Penilaian deria menggariskan perbezaan bererti ($p<0.05$) pada rasa dan penerimaan keseluruhan Bubur Asyura. Komposisi kimia menunjukkan sampel Bubur Asyura yang mendapat penerimaan tertinggi memberikan nilai yang tinggi pada kandungan lembapan dan serat iaitu masing-masing 56.5% dan 0.48% dan nilai yang rendah pada kandungan protein, lemak dan karbohidrat iaitu masing-masing 2.53%, 2.27% dan 37.5% berbanding dengan sampel yang dikawal. Analisis mikrobiologi menunjukkan jangka hayat sampel yang paling diterima ialah 22 hari di mana lebih lama daripada sampel yang dikawal iaitu 19 hari di dalam penyimpanan suhu dingin.