

EFFECTS OF PARTIALLY COOKED FROZEN 'SATAR' ON THE CHEMICAL
ANALYSES, MICROBIOLOGICAL QUALITY AND SENSORY ACCEPTANCE

By

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ENDORSEMENT

The project report entitled **Effects of Partially Frozen ‘Satar’ on the Chemical Analyses, Microbiological Quality and Sensory Acceptance** by **Suriani Binti Ahmad**, Matrix No **UK16720** 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 fulfilment of the requirement of the 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

'Satar' is a popular ready-to-eat food which is grilled before being served. Left over 'Satar' is frequently subjected to frozen and re-grilling. Storing the 'Satar' under freezing condition has been common practice and it will affect the quality of this product. This product may undergo undesirable changes during storage and such deterioration may affect the quality of 'Satar'. The changes of partially cooked frozen 'Satar' during storage and re-grilling have never been studied. Initially, 'Satar' was prepared under controlled environment by mixing the fish, onion, shallot, spices, sugar, salt and shredded coconut together. The chemical analysis was conducted every two weeks storage at -18°C. The moisture, carbohydrate, protein, lipid and ash contents of the 'Satar' were 66.89%, 5.39%, 11.71%, 14.06% and 1.87%, respectively. In the present study, the peroxide value of 'Satar' significantly increased from 9.23 to 12.75 mEq/kg fat during frozen storage. The sensory qualities of 'Satar' were evaluated in terms of colour, odour, texture, juiciness taste and overall acceptance. There were significant different ($p < 0.05$) among all samples in term of odour and juiciness attributes. Odour was significantly detectable during high lipid oxidation. Aerobic Plate count, total Coliform count, *Enterobacteriaceae* count and yeast and mould count were gradually increased during frozen storage while *E.coli* was decreased throughout the storage time. *Staphylococcus aureus*, *Salmonella* and *Listeria* could not be found and detected. In conclusion, storage of partially cooked frozen 'Satar' was acceptable within 4 weeks of storage at -18°C. After four week of storage at -18°C, lipid oxidation was significantly higher and had affected the acceptable physicochemical properties of the product.

ABSTRAK

Satar adalah makanan popular yang sedia dimakan dan dipanggang sebelum dihidangkan. Walau bagaimanapun, Satar yang berlebihan lebih sesuai disejukbekukan dan dipanggang semula. Penyimpanan Satar pada keadaan sejukbeku adalah amalan yang biasa diamalkan untuk mengelakkan masalah lebihan Satar yang tidak terjual. Bagaimanapun, produk ini boleh menyebabkan perubahan yang tidak dikehendaki dan kerosakan boleh memberi kesan kepada kualiti Satar. Satar disediakan dalam keadaan yang terkawal dengan mencampurkan bahan-bahan seperti ikan, bawang, rempah, gula, garam dan kelapa parut. Analisis kimia dan mikrobiologi kualiti dijalankan setiap 2 minggu. Manakala penilaian deria dijalankan selepas memperolehi keputusan mikrobiologi. Hasil kajian mendapati kandungan kelembapan, karbohidrat, protein, lemak dan abu adalah 66.89%, 5.39%, 11.71%, 14.06% and 1.87%, masing-masing. Dalam kajian ini juga, nilai peroksida meningkat dari 9.23 kepada 12.75 mEq/kg lemak sepanjang tempoh penyimpanan. Penerimaan pengguna dinilai dari segi warna, bau, tekstur, kejusan, rasa dan penerimaan keseluruhan. Keputusan mendapati terdapat perbezaan yang ketara ($p < 0.05$) di antara sampel dari atribut bau dan kejusan. Bau dipengaruhi oleh pengoksidaan lemak. Keputusan bakteria aerob, jumlah coliform, *Enterobacteriaceae* dan yis dan kulat didapati meningkat sepanjang tempoh penyimpanan, manakala *E.coli* adalah menurun. Bagaimanapun, *Staphylococcus aureus*, *Salmonella* dan *Listeria* tidak dapat dikesan. Kesimpulannya, Satar separuh masak dan disejukbekukan diterima dan selamat dimakan dalam tempoh 4 minggu penyimpanan. Selepas 4 minggu penyimpanan, pengoksidaan lipid adalah semakin meningkat dan mempengaruhi kualiti produk.