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Lihat Sebelah

DEVELOPMENT OF SOYBEAN FLAKES

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DECLARATION

I hereby declare that this research project is based on my original work except for quotations and summaries which have been duly acknowledged. I also declare that this thesis has not been previously or concurrently submitted for any degree at University Malaysia Terengganu (UMT) or other institutions.

Date: 25th June 2007.

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ABSTRACT

The purpose of this study was to develop flaked breakfast cereals from soy pulp and to determine the chemical and physical characteristics of the product. This study also aims to determine the level of acceptance of the flakes by consumer. The soybean flakes were prepared using three different formulations which differs in terms of soy pulp grits incorporation. Each formulation includes ingredients such as corn flour, soy pulp grits, salt, emplex and water. Levels of soy pulp grits were increased for each formulation from 20% to 40% to 60%. Statistical Analysis System (SAS) was used to determine the Analysis of Variance (ANOVA) and Duncan's Multiple Range Test (DMRT) at a probability level of 5%. The optimum range to provide nutritional value for soybean flakes is with the incorporation of 60% soy pulp grits. The optimum range for consumer acceptance of soybean flakes is with the incorporation of 20% soy pulp grits. Results from this study indicate that fat, moisture, fiber and protein content increased with the increase levels of soy pulp grits. Significant increase was observed between soybean flakes made from 20% soy pulp grits and 60% soy pulp grits. The fat, moisture, fiber and protein content increased from 2.85%, 5.89%, 2.00%, 7.99 to 4.70%, 6.39%, 4.94%, 14.53% to 6.21%, 6.41%, 12.01%, 18.69% respectively as soy pulp grits level increased from 20% to 40% to 60%. In contrast, carbohydrate content decreased with increased levels of soy pulp grits. Carbohydrate content decreased from 34.72% to 29.15% to 23.69% respectively as the soy pulp grits increased from 20% to 40% to 60%. The results from this study also show that the hardness and crispness of soybean flakes increased with increased levels of soy pulp grits. The yellowness of soybean flakes also increased with increased incorporation of soy pulp grits. However, the lightness of soybean flakes decreased with increased levels of soy pulp grits. 60 panels were enlisted to help in the sensory evaluation of soybean flakes. An affective test using the 7-point hedonic scale was conducted and soybean flakes made from 20% soy pulp grits was the best accepted by consumers. This shows that lower levels of soy pulp grits have the potential to produce a consumer acceptable product.

PERKEMBANGAN EMPING KACANG SOYA

ABSTRAK

Kajian ini dilakukan untuk menghasilkan satu produk emping daripada pulpa kacang soya dan untul menilai cirri-ciri kimia dan fizikal produk tersebut. Kajian ini juga bertujuan untuk mengenalpasti tahap penerimaan pengguna terhadap produk ini. Emping kacang soya dihasilkan melalui tiga formulasi yang berbeza. Formulasi tersebut berbeza dari segi peruntukan peratus pulpa kacang soya. Setiap formulasi menggunakan bahan seperti tepung jagung, pulpa kacang soya, garam, emplex dan air. Peratus pulpa kacang soya meningkat dengan setiap formulasi dari 20% kepada 40% kepada 60%. Statistical Analysis System (SAS) digunakan untuk melakukan analisis varians (ANOVA) dan *Duncan's Multiple Range Test (DMRT)*. Julat optimum untuk membekalkan nilai pemakanan kepada emping kacang soya ialah dengan penggunaan 60% pulpa kacang soya. Julat optimum untuk penerimaan pengguna pula ialah dengan penggunaan 20% pulpa kacang soya. Keputusan daripada kajian ini menunjukkan bahawa kandungan lemak, lembapan, gentian dan protein meningkat dengan peningkatan pulpa kacang soya dalam formulasi. Keputusan untuk emping kacang soya yang dihasilkan daripada 20% pulpa kacang soya adalah berbeza secara signifikan daripada emping kacang soya yang dihasilkan daripada 60% pulpa kacang soya. Kandungan lemak, lembapan, gentian dan protein masing-masing meningkat daripada 2.85%, 5.89%, 2.00%, 7.99 kepada 4.70%, 6.39%, 4.94%, 14.53% kepada 6.21%, 6.41%, 12.01%, 18.69% apabila peratus pulpa kacang soya meningkat daripada 20% kepada 40% kepada 60%. Sebaliknya, kandungan karbohidrat emping kacang soya menurun apabila peratus pulpa kacang soya meningkat. Kandungan karbohidrat menurun daripada 34.72% kepada 29.15% kepada 23.69% apabila peratus pulpa kacang soya meningkat daripada 20% kepada 40% kepada 60%. Keputusan daripada kajian ini juga menunjukkan bahawa kekerasan dan keranggupan emping kacang soya meningkat dengan peningkatan dalam peratus pulpa kacang soya. Warna kekuningan emping kacang soya juga meningkat dengan peningkatan dalam peratus pulpa kacang soya. Walau bagaimanapun, darjah kecerahan warna emping kacang soya menurun dengan peningkatan dalam peratus pulpa kacang soya. 60 orang panel telah dijemput untuk membantu dalam penilaian sensori emping kacang soya. Ujian afektif yang menggunakan skala hedonik 7-poin dilakukan. Didapati bahawa emping kacang soya yang dihasilkan daripada 20% pulpa kacang soya paling diterima oleh panel. Ini menunjukkan bahawa tahap penggunaan pulpa kacang soya yang lebih rendah mempunyai potensi untuk menghasilkan produk emping kacang soya yang diterima oleh pengguna.