PHYSICOCHEMICAL CHARACTERISTICS AND SENSORY
PROPERTIES OF BREAD MADE WITH BREAD FLOUR, SOY FLOUR
AND OAT FLOUR

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Physicochemical characteristics and sensory properties of bread
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PHYSICOCHEMICAL CHARACTERISTICS AND SENSORY PROPERTIES OF BREAD MADE WITH BREAD FLOUR, SOY FLOUR AND OAT FLOUR

By

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RESEARCH PROJECT submitted in partial fulfillment of the requirements for the Degree of Bachelor of Food Science (Food Service and Nutrition)

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2007

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 it has not been previously or concurrently submitted for any degree at UMT or other institutions.

25TH JUNE 2007   LEONARD BONG ZHI HUNG

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ABSTRACT

The purpose of this study was to determine the physico-chemical characteristics and the sensory properties of bread with different percentages of flour blends. Breads were prepared with different ratio of flour blends which consist of bread flour (BF), soy flour (SF) and oat flour (OF). Six formulations of breads were prepared according to the different percentages of flour blends prepared. SAS programme was used to determine the Analysis of Variance (ANOVA) and Duncan's Multiple Range Test (DMRT). Results of this study indicated that the protein and fibre content of bread increased significantly with the incorporation of higher percentage of soy flour and oat flour. All formulations of the bread can be claimed as "high protein" food whiles all formulations except bread that made with 100% of bread flour and also bread that made with 95% bread flour, 2.5% soy flour and 2.5% oat flour can be claimed as "high fibre" food. The results also revealed that soy flour and oat flour increased the firmness, index of redness and yellowness of the breads thus also decreased the lightness and moisture content of the breads. From this study, it was found that bread made with 95% bread flour, 2.5% soy flour and 2.5% of oat flour is more acceptable by the panelist with no significantly different of sensory attributes with bread that made with 100% of bread flour. There are 50 panels involved in the affective sensory test. Breads that prepared with lower percentage of oat flour and soy flour were more acceptable by the panels and showed significant different at $p < 0.05$ with the acceptance of breads which made with higher percentage of soy flour and oat flour. Panel did not like bread made with higher percentage of soy flour and oat flour due to it taste and smell. Only 2.5% of soy flour and oat flour added is acceptable. This indicated that low composition of soy flour and oat flour has the potential to substitute part of the bread flour in bread-making.

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CIRI-CIRI FIZIKOKIMIA DAN SENSORI ROTI YANG DIHASILKAN DARIPADA TEPUNG ROTI, TEPUNG SOYA DAN TEPUNG OAT

ABSTRAK

Kajian ini dilakukan untuk menilai kesan penggunaan gabungan tepung pada peratusan yang berbeza ke atas ciri-ciri fizikokimia dan penerimaan sensori roti. Roti disediakan dengan menggunakan gabungan tepung, iaitu tepung roti, tepung soya dan tepung oat. Enam formulasi roti dihasilkan berpandukan gabungan tepung pada peratusan yang telah ditetapkan. Program SAS digunakan untuk melakukan analisis varians (ANOVA) dan Duncan's Multiple Range Test (DMRT). Hasil kajian ini menunjukkan kandungan protein dan gentian meningkat secara signifikan dengan penambahan tepung soya dan tepung oat pada nisbah yang tinggi. Semua formulasi roti yang dihasilkan boleh diklasifikasikan sebagai produk yang tinggi protein dan semua formulasi roti kecuali roti yang dihasilkan daripada 100% tepung roti serta roti yang dihasilkan daripada 95% tepung roti, 2.5% tepung soya dan 2.5% tepung oat boleh dikelaskan sebagai produk yang tinggi gentian. Hasil kajian juga menujukkan penambahan tepung soya dan tepung oat dalam penghasilan roti meningkatkan kekerasan, indeks kemerahan dan kekuningan serta merendahkan kecerahan dan kandungan air roti. Daripada kajian ini, didapati roti yang dihasilkan daripada 95% tepung roti, 2.5% tepung oat dan 2.5% tepung soya lebih diterima oleh ahli-ahli panel dan tidak menunjukkan perbezaan signifikan dari segi ciri-ciri sensori dengan roti yang dihasilkan daripada 100% tepung roti. Terdapat 50 panel yang terlibat dalam ujian afektif bagi penilaian sensori. Roti yang disediakan dengan peratusan tepung oat dan tepung soya yang rendah menunjukkan perbezaan yang signifikan (p<0.05) dengan penerimaan yang tinggi daripada ahli-ahli panel. Ahli-ahli panel tidak suka roti yang disediakan dengan peratusan tepung oat dan tepung soya yang tinggi disebabkan bau dan rasa yang pelik. Hanya penambahan sebanyak 2.5% tepung soya dan tepung oat diterima oleh ahli panel. Ini mencerminkan penambahan tepung soya dan tepung oat dalam peratusan yang rendah adalah berpotensi untuk menggantikan sebahagian daripada tepung roti dalam penghasilan roti.