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Effect of different types of fat on several characteristics of frozen pie dough / Ch'ng Phui Kent.

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**EFFECT OF DIFFERENT TYPES OF FAT ON SEVERAL
CHARACTERISTICS OF FROZEN
PIE DOUGH**

By

Ch'ng Phui Kent

**Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Food Science (Food Service and Nutrition)**

**DEPARTMENT OF FOOD SCIENCE
FALCULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
UNIVERSITI MALAYSIA TERENGGANU**

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ENDORSEMENT

The project report entitled **Effect of Different Types of Fat on Several Characteristics of Frozen Pie Dough** by **Ch'ng Phui Kent**, Matric No. **UK 16529**, 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 for the degree of Bachelor of Food Science (Food Service and Nutrition), 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

In the emergent of frozen food products, frozen bakery products present a great variety. However, frozen pie dough is not yet available in Malaysia. Second main ingredient in pie making that is the type of fat used influences the characteristics of frozen pie dough and its post-baked pie crusts. Moreover, types of fat used will also directly associate with consumer's health. The objectives of this study were to determine the effect of types of fat on physical characteristics of frozen pie dough, including dough tensile strength and stickiness, crust hardness and fracturability, crust colour, and pie shrinkage. The second objective was to determine the effect of types of fat on chemical characteristics of frozen pie dough, including proximate composition, degree of unsaturation and calorie content. The third objective was to determine the sensory acceptance of the post-baked pie crust produced in terms of colour, aroma, texture (hardness and fracturability), texture (mealy and flaky), taste, after taste and overall acceptance. For physical analysis, all physical tests showed significance difference ($p < 0.05$) among samples made with different fat formulations. For chemical analysis, ash content, iodine value and calorie content showed significance difference ($p < 0.05$) among samples made with different fat formulations. For sensory acceptance, aroma, hardness and fracturability and after taste showed significance difference ($p < 0.05$) among samples made with different fat formulations. Pie made from S50B50 is suggested to be better formulation to be used due to its high protein content, low fat content, highest acceptability of after taste and overall acceptance.

Key word: frozen pie dough, fats, physicochemical characteristics, sensory acceptance.

ABSTRAK

Dalam munculan produk makanan sejuk beku, produk bakeri sejuk beku yang dijual di pasaran terdiri daripada pelbagai jenis. Walau bagaimanapun, doh pai sejuk beku tidak lagi terdapat di Malaysia. Bahan kedua utama untuk pembuatan pai iaitu jenis lemak yang digunakan mempengaruhi ciri-ciri doh pai sejuk beku dan kulit pastri pai. Tambahan pula, jenis lemak yang digunakan juga menjadi perhatian utama kerana ia secara langsung dikaitkan dengan kesihatan pengguna. Objektif-objektif untuk kajian ini ialah mengkaji kesan jenis lemak pada sifat-sifat fizikal doh pai sejuk beku, iaitu kekuatan tegangan, kelekitan, kekerasan dan kepatahan kulit pastri pai, warna kulit pai dan pengecutan kulit pastri pai. Objektif kedua untuk kajian ini ialah mengkaji kesan jenis lemak pada sifat-sifat kimia doh pai sejuk beku, iaitu komposisi kimia terdekat, darjah ketidaktepuan dan kandungan kalori. Objektif ketiga untuk kajian ini ialah mengkaji penilaian deria pada tahap penerimaan kulit pastri pai dari segi ciri-ciri warna, aroma, tekstur, (kekerasan dan kepatahan), tekstur (kelembutan dan keranguppan), rasa, selepas rasa dan penerimaan keseluruhan. Untuk analisis fizikal, semua sifat yang dikaji menunjukkan perbezaan yang signifikan ($p < 0.05$). Untuk analisis kimia, kandungan abu, nilai iodin dan kandungan kalori menunjukkan perbezaan yang signifikan ($p < 0.05$). Bagi penilaian deria, aroma, kekerasan dan kepatahan dan selepas rasa menunjukkan perbezaan yang signifikan ($p < 0.05$). Pai yang diperbuat daripada S50B50 dicadangkan untuk menjadi perumusan yang lebih kerana kandungan proteinnya yang tinggi, kandungan lemak yang rendah, penerimaan tertinggi selepas rasa dan penerimaan keseluruhan.

Kata-kata kunci: pai doh sejukbeku, lemak, ciri-ciri fizikokimia, penerimaan deria.