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DEVELOPMENT OF PEGAGA CRACKERS

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

**FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
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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.

15th June 2006

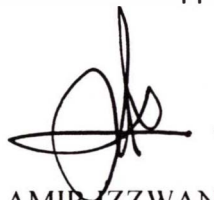


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ABSTRACT

Pegaga (*Centella asiatica*) was made into crackers, namely pegaga crackers. Two variations of pegaga crackers were developed using two different methods – fresh chopped pegaga and extract of pegaga. This food item was subjected to physical and chemical analyses as well as comparative sensory evaluation. Seven formulations were produced and the differences were based on the amount of pegaga added into the crackers. The sensory profile and acceptability of seven formulations of pegaga crackers were measured. A total of 100 panels had greater preference on pegaga crackers made from pegaga extract than chopped pegaga crackers. However, results revealed that pegaga crackers without any addition of pegaga were the most accepted (mean score for control crackers – 5.10). The hardness of pegaga crackers increased as the amount of pegaga was added into pegaga crackers made from chopped pegaga, while the extract of pegaga became less hard as the amount of pegaga was increased. A similar result was observed in fracturability. Pegaga crackers gave higher reading of fracturability in extract pegaga crackers in comparison to fresh chopped pegaga crackers. The colors of pegaga crackers made from pegaga extract were more yellowish and brighter. Extract pegaga crackers (25% of pegaga extract) contained more moisture content than fresh chopped pegaga crackers (15% chopped pegaga). Protein content for pegaga crackers were the highest in crackers made by pegaga extract (25% of extract pegaga contained 2.84% of protein) than pegaga crackers made from chopped pegaga crackers (15% of chopped pegaga contained 2.54% of protein). Pegaga crackers with chopped pegaga (15% of chopped pegaga contained 1.945% fiber) showed higher fiber content than the extracted crackers (25% extract of pegaga – 1.849). Phenolic compounds exist in pegaga; hence they play a vital role in oxidation processes, as antioxidants. Pegaga crackers produced by extract of pegaga (25% of pegaga extract) contained higher phenolic level than crackers made from fresh chopped pegaga (15% chopped pegaga). It was found that in overall, pegaga crackers made from its extract produced better qualities in comparison to pegaga crackers made from fresh chopped pegaga. Proximate analyses showed that all the formulations produced were adjudged to be acceptable in terms of overall quality.

PENGHASILAN KRAKER PEGAGA

ABSTRAK

Pegaga (*Centella asiatica*) telah digunakan untuk menghasilkan kraker, yang dinamakan sebagai *pegaga crackers*. Dua kaedah telah digunakan untuk menghasilkan kraker tersebut iaitu dengan menggunakan pegaga segar yang telah dicincang dan ekstrak pegaga. Beberapa analisis fizikal, kimia dan ujian penilaian sensori telah dijalankan untuk menentukan kandungan yang terdapat dalam kraker pegaga. Tujuh formulasi berjaya dihasilkan dan perbezaan utama formulasi tersebut bergantung kepada kandungan pegaga yang dimasukkan ke dalam kraker tersebut. Sejumlah 100 orang panel telah melakukan ujian sensori lebih gemar kraker yang dibuat daripada ekstrak pegaga. Namun begitu, secara keseluruhan, panel lebih gemar kraker yang tidak mengandungi pegaga (nilai min skor untuk kawalan - 5.10). Kekerasan kraker pegaga cincang ini meningkat apabila jumlah pegaga yang dimasukkan turut bertambah, manakala biskut kraker pegaga ekstrak berkurang dengan penambahan ekstrak pegaga. Keputusan yang sama turut diperhatikan dalam kebolehpatahan di mana kraker pegaga ekstrak memberikan bacaan yang tinggi. Warna kraker pegaga yang dihasilkan adalah lebih terang dan kuning, berbanding kraker pegaga cincang. Pegaga ekstrak (25% pegaga ekstrak) mengandungi kelembapan yang lebih tinggi berbanding biskut kraker cincang (15% pegaga cincang). Kandungan protein dalam biskut kraker ekstrak (25% pegaga ekstrak mengandungi 2.84% protein) adalah lebih tinggi berbanding kraker pegaga cincang (15% pegaga cincang mengandungi 2.54% protein). Namun begitu, kraker pegaga cincang mencatatkan kandungan serat yang lebih tinggi (15% pegaga cincang - 1.954% serabut) berbanding kraker pegaga ekstrak (25% pegaga ekstrak - 1.849% serabut). Kandungan fenolik kraker pegaga adalah rendah walaupun pegaga mengandungi kandungan antioksidan yang tinggi. Antioksidan membantu dalam proses pengoksidaan, bertindak sebagai antioksidan. Kraker pegaga ekstrak (25 % pegaga ekstrak) mengandungi fenolik yang lebih tinggi. Didapati, kraker pegaga yang menggunakan ekstrak pegaga adalah lebih berkualiti berbanding kraker pegaga yang menggunakan kaedah cincang. Secara keseluruhan, kraker pegaga yang dihasilkan dalam projek ini menunjukkan kualiti hasil produk ini adalah memuaskan.