

DEVELOPMENT OF PIVOTABLE COPE CHIPS  
(Ammonia Synthesis)

WU ZHI QIANG

REPORT OF RESEARCH ON THE DEVELOPMENT OF PIVOTABLE COPE CHIPS  
FOR AMMONIA SYNTHESIS

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**DEVELOPMENT OF PINEAPPLE CORE CHIPS**  
*(Ananas Comosus)*

**TAN ZHI CHENG**

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

**FACULTY 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.


10<sup>th</sup> June 2007



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Approved by,



DR AMIR IZZWAN ZAMRI  
(Supervisor)

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## ABSTRACT

This study was carried out to analyze physical, chemical and sensory evaluation of fruit snack product, which is tortilla chips with pineapple core flour added. There are four formulations which is control with 100 % corn flour, sample contains 10 % of pineapple core flour, sample contains 30 % pineapple core flour and sample contains 50 % pineapple core flour. Besides that 100 % pineapple core flour also tested for determination of color profile, and chemical analysis. For physical analysis, it includes texture (fractuability) and color analysis. For fractuability result, it showed that sample containing 50 % pineapple core flour has the highest force ( $0.49 \pm 0.09$  kg) compare to others. Colorimeter's result showed that  $a^*$  and  $b^*$  increased with the increased of pineapple core flour percent in the formulation. However,  $L^*$  highest for control sample with  $56.43 \pm 0.83$ . Analysis of chemical includes carbohydrate, protein, fat and fiber has been done. For carbohydrate, it showed that control sample obtained the highest result with  $42.78 \pm 1.73$ . Analysis of protein, fat and fiber showed that sample contained 50 % pineapple core flour get the highest percentage compare to other sample. Sensory evaluation show that sample containing 10 % pineapple core flour is the most acceptable by panel with  $4.74 \pm 1.01$  followed by control sample with  $4.66 \pm 1.12$ .

## PENGHASILAN CHIPS PUSAT NENAS (*Ananas Comosus*)

### ABSTRAK

Kajian ini dijalankan untuk menentukan ciri-ciri fizikal, kimia dan tahap penerimaan pengguna terhadap produk snek buah-buahan iaitu *tortilla chips* dengan penambahan serbuk pusat nenas. Terdapat empat formulasi iaitu kawalan dengan 100 % serbuk jagung, sampel yang mengandungi 10 % serbuk pusat nenas, sampel yang mengandungi 30 % serbuk nenas dan sampel yang mengandungi 50 % serbuk nenas. Selain itu, serbuk pusat nenas 100 % juga di kaji bagi penentuan warna dan menentukan ciri-ciri kimia. Untuk penentuan ciri-ciri fizikal, ia melibatkan penentuan tekture (kebolehpatahan) dan penentuan warna. Penentuan kebolehpatahan menunjukkan bahawa sample yang mengandungi 50 % serbuk pusat nenas memerlukan daya yang paling tinggi ( $0.49 \pm 0.09$  kg) berbanding sample lain. Keputusan kalorimeter menunjukkan bahawa nilai  $a^*$  dan  $b^*$  meningkat dengan penambahan amaun serbuk pusat nenas. Manakala nilai  $L^*$  paling tinggi bagi sample kawalan iaitu  $56.43 \pm 0.83$ . Analisis kimia yang dijalankan merupakan penentuan karbohidrat, protein, lemak dan gentian kasar. Bagi penentuan karbohidrat, sample kawalan menunjukkan keputusan yang paling tinggi dengan  $42.78 \pm 1.73$ . Analisis protein, lemak dan gentian kasar pula menunjukkan bahawa sampel yang mengandungi 50 % serbuk pusat nenas menunjukkan nilai yang paling tinggi berbanding sampel lain. Penilaian sensori menunjukkan sample yang mengandungi 10 % serbuk pusat nenas paling diterima oleh panel dengan min skor  $4.74 \pm 1.01$  diikuti oleh sample kawalan dengan min skor  $4.66 \pm 1.12$ .