

DEVELOPMENT OF STANDARD QUANTA FROM *Carrollia asiatica*

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**HAK MILIK**  
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**DEVELOPMENT OF HARD CANDY FROM *Centella asiatica***

**By**

**FARHANA BINTI SAADUD DIN**

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

**FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE  
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## DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations 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.

25<sup>th</sup> JUNE 2007



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FARHANA BINTI SAADUD DIN

Approved by,

25<sup>th</sup> JUNE 2007

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PN. ZAMZAHAILA BT MOHD ZIN

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## ABSTRACT

*Centella asiatica* or 'pegaga' is the healthy and effective plant for memory function, treatment of skin diseases, hypertension, and other illness. The objectives of this study were to develop hard candy from *C. asiatica* and evaluate the consumer acceptances after incorporating *C. asiatica*. The interrelationship of the physical analysis, chemical analysis, and sensory evaluation has been studied. There were six formulations with different percentage of *C. asiatica* powder (0%, 1%, 2%, 3%, 4%, and 5%) used on this study. The results for physical analysis that was color analysis showed that 'L' value, and 'a' value was decreased while 'b' value was increased by increasing *C. asiatica* powder. The control sample showed significant different ( $p < 0.05$ ) compared to other samples. Chemical analysis that have been done were proximate analysis and water activity. The results showed the moisture and protein content were increased by increasing *C. asiatica* powder. The highest fiber content showed in sample C while the highest carbohydrate content was in sample A. There were no ash and fat content detected in *C. asiatica* hard candy. The water activity value for the *C. asiatica* hard candy was in the range of 0.57 – 0.61. The results for sensory evaluation showed that formulation A and B were more acceptances compared to other samples. There were significant difference ( $p < 0.05$ ) between control sample and other samples that contained *C. asiatica* powder for color, shape, taste, hardness, and overall acceptances attributes.



## PEMBANGUNAN GULA-GULA DARIPADA *Centella asiatica*

### ABSTRAK

*Centella asiatica* atau 'pegaga' merupakan sejenis tumbuhan yang berkhasiat dan efektif untuk kecerdasan minda, mengubati penyakit kulit, hipertensi dan sebagainya. Kajian ini dilakukan untuk menghasilkan gula-gula keras daripada *C.asiatica* serta menilai penerimaannya di kalangan pengguna. Perkaitan antara analisis fizikal, analisis kimia, dan penilaian sensori juga dikaji. Terdapat enam formulasi dalam kajian ini di mana kandungan serbuk pegaga adalah berbeza iaitu 0%, 1%, 2%, 3%, 4%, dan 5%. Hasil bagi analisis fizikal iaitu analisis warna, nilai kecerahan ('L') dan kemerahan atau kehijauan ('a') menurun manakala nilai kekuningan atau kebiruan ('b') meningkat dengan peningkatan kandungan serbuk pegaga. Sampel rujukan mempunyai perbezaan yang signifikan ( $p < 0.05$ ) berbanding sampel yang lain. Analisis kimia yang dilakukan adalah analisis proksimat dan aktiviti air. Hasil analisis menunjukkan bahawa kandungan lembapan dan protein meningkat dengan penambahan serbuk pegaga. Kandungan fiber paling tinggi adalah sampel C manakala kandungan karbohidrat yang paling tinggi ialah sampel A. Selain itu, tiada kandungan abu dan lemak dikesan dalam gula-gula pegaga. Nilai bagi aktiviti air adalah dalam julat 0.57 – 0.61. Hasil daripada penilaian sensori menunjukkan bahawa formulasi bagi sampel A dan B lebih diterima berbanding sampel lain. Terdapat perbezaan signifikan ( $p < 0.05$ ) antara sampel rujukan dengan sampel lain yang mengandungi serbuk pegaga bagi atribut warna, bentuk, rasa, kekerasan dan penerimaan keseluruhan.