

NUTRITIONAL COMPOSITION OF *Garcinia prainiana* FRUIT

By

Lim Swee Ling

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ENDORSEMENT

The project report entitled **Nutritional Composition of *Garcinia prainiana* Fruit** by **Lim Swee Ling**, Matric No. **UK 16983** 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 of the degree of Food Science (Food Service and Nutrition), Faculty of Agrotechnology and Food Science, University Malaysia Terengganu.



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(DR NOR HAYATI BINTI IBRAHIM)

DR. NOR HAYATI IBRAHIM
Lecturer
Department of Food Science
Faculty of Agrotechnology and Food Science
Universiti Malaysia Terengganu
21030 Kuala Terengganu

Date: 30/1/2012

DECLARATION

I hereby declare that the work in this thesis is my own except for quotation and summaries which have been duly acknowledged.

Signature : 

Name : LIM SWEE LING

Matric No. : UK 16983

Date : 30/1/2012

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ABSTRACT

The proximate composition, selected water – soluble vitamins, minerals, and dietary fiber contents of *Garcinia prainiana* fruit were investigated in order to promote the wider use of this fruit. The *Garcinia prainiana* fruit contained the highest amount of moisture (86.67 %), followed by carbohydrate (6.74 %), crude fiber (3.00 %), and crude protein (2.58 %), but the lowest amount of ash and crude fat (< 0.60 %), which were carried out based on AOAC standard methods. Besides, thiamine and riboflavin of *Garcinia prainiana* fruit were analyzed by spectrofluorometer, and were recorded to be 4.72, and 3.29 mg / 100 g respectively, whereas the nicotinamide, pantothenic acid, and pyridoxine were determined by high performance liquid chromatography, and was determined to be 0.44, 0.32, and 2.98 mg / 100 g, respectively. The *Garcinia prainiana* fruit pulp was orange in colour and had considerably high ascorbic acid content (11.04 mg / 100 g), which was analyzed by 2, 6 – dichloroindophenol titrimetric method. However, the *Garcinia prainiana* fruit recorded had fairly low amount in selected minerals after carried out by atomic absorption spectrophotometer. Potassium (18.28 mg / 100 g) was observed to be the most abundant mineral in *Garcinia prainiana* fruit, followed by magnesium (4.16 mg / 100 g), calcium (2.18 mg / 100 g), and manganese (2.05 mg / 100 g), but fairly low amounts in sodium, copper, zinc, and iron (< 1.00 mg / 100g). In addition, the total dietary fiber content of *Garcinia prainiana* fruit was analyzed to be 3.02 %, whereas the insoluble and soluble dietary fiber constituted 64.24 %, and 35% of total dietary fiber, which were determined by enzymatic – gravimetric method. In conclusion, the *Garcinia prainiana* fruit had considerable amount of proximate composition, and fairly rich in water – soluble vitamins, especially the vitamin B complex, but it was found to be relatively poor in minerals and dietary fiber contents.

ABSTRAK

Komposisi proksimat, vitamin larut air dan mineral terpilih, serta gentian diet yang terdapat dalam buah *Garcinia prainiana* telah ditentukan untuk menggalakkan penggunaan buah ini sepenuhnya. Buah *Garcinia prainiana* didapati mengandungi kandungan kelembapan yang paling tinggi (86.67 %), diikuti dengan karbohidrat (6.74 %), gentian kasar (3.00 %), dan protein kasar (2.58 %), tetapi sangat rendah dalam abu dan lemak kasar (< 0.6%), yang telah dijalankan menggunakan kaedah piawai AOAC. Selain itu, thiamina dan riboflavina dalam buah *Garcinia prainiana* telah dianalisa menggunakan spektrofotometer, di mana 4.72, and 3.29 mg / 100 g masing – masing dicatatkan, manakala nicotinamide, pantothenic acid, dan pyridoxine telah ditentukan dengan menggunakan kaedah kromatografi cecair berprestasi tinggi, dan ditentukan sebanyak 0.44, 0.32, and 2.98 mg / 100 g, masing – masing. Buah *Garcinia prainiana* yang berwarna jingga didapati mengandungi asid askorbik yang agak tinggi (11.04 mg / 100 g), setelah ditentukan dengan kaedah 2, 6 – titrimetri dichloroindophenol. Walau bagaimanapun, buah *Garcinia prainiana* fruit telah didapati mengandungi kandungan mineral yang rendah selepas ditentukan menggunakan kaedah spektrofotometer penyerapan atom. Kalium (18.28 mg / 100 g) merupakan mineral yang paling banyak dalam buah *Garcinia prainiana* fruit, diikuti dengan magnesium (4.16 mg / 100 g), kalsium (2.18 mg / 100 g), dan manganese (2.05 mg / 100 g), tetapi kandungan natrium, besi, tembaga, dan zink dicatatkan agak minimum (< 1.00 mg / 100g). Di samping itu, jumlah gentian diet dalam buah *Garcinia prainiana* adalah sebanyak 3.02 ± 0.28 %, manakala gentian diet tak larut dan gentian diet larut terdiri daripada 64.24 % dan 35% jumlah gentian diet, yang telah ditentukan dengan menggunakan kaedah gravimetrik berenzim. Kesimpulannya, buah *Garcinia prainiana* didapati mengandungi sejumlah besar komposisi proksimat, dan agak kaya dengan vitamin larut air, terutamanya vitamin B kompleks, tetapi ia agak kurang dalam kandungan mineral dan gentian diet.