



Systematic Development of the National FCDB in Malaysia: A Case Study for ASEAN

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HISTORY OF MALAYSIAN FCT/FCD

- 1980 – initiated by Institute for Medical Research
- 1982 – compilation of a preliminary FCT/FCD
- 1988 – first comprehensive Malaysian FCT/FCD by Tee et al.
- 1997 – the latest Malaysian FCT by Tee et al.
 - A total of 783 foods
 - 19 nutrients

HISTORY OF MALAYSIAN FCD



- The latest FCT/FCD published by Dr. Tee E. Siong (IMR), Prof. Dr. Mohd Ismail Noor (UKM), Dr Mohd Nasir Azudin (UPM) & Mrs Khadijah Idris (MARDI) in 1997

- However, no updated version of Food Composition Table has been published in Malaysia since then.

Nutrients included in Malaysian FCT/FCD 1997

No.	Nutrients	Unit
1.	Energy	kcal
2.	Water	g
3	Protein	g
4.	Fat	g
5.	Carbohydrate, by difference	g
6.	Fiber (crude)	g
7.	Ash	g
8.	Calcium, Ca	mg
9.	Iron, Fe	mg
10.	Magnesium, Mg	mg
11.	Phosphorus, P	mg
12.	Potassium, K	mg
13.	Sodium, Na	mg

No.	Nutrients	Unit
14.	Retinol	µg
15.	Carotene	µg
16.	RE	µg
17.	Ascorbic Acid (Vitamin C)	mg
18.	Thiamin (B1)	mg
19.	Riboflavin (B2)	mg

STATUS AND NATURE OF NATIONAL FCD: 1997

No.	Name of food	Wt in household measure/as purchased		Nutrient composition of edible portions							
				Proximate composition							
				Energy Kcal	Water g	Protein g	Fat g	CHO g	Fibre g	Ash g	
		% EP	EP, g								
1.01 Cereals and cereal products											
101001	Barley, pearl (<i>Beras Belanda</i>); <i>Hordeum vulgare</i>	100	100.0	335	12.0	9.2	1.3	71.7	3.4	2.4	
	1 tablespoon	13	100	12.8	43	1.5	1.2	0.2	9.2	0.4	0.3
	¼ cup	52	100	51.7	173	6.2	4.8	0.7	37.1	1.8	1.2
101002	Maize (<i>Jagung</i>); <i>Zea Mays</i>	100	100.0	355	13.5	9.2	4.6	69.3	2.0	1.4	
	1 tablespoon	14	100	13.7	49	1.8	1.3	0.6	9.5	0.3	0.2
	1 cup	222	100	222.1	789	30.0	20.4	10.2	153.9	4.4	3.1
101003	Corn flour; maize flour (<i>Tepung jagung</i>)	100	100.0	355	12.0	0.5	1.4	85.0	0.0	1.1	
	1 tablespoon	8	100	8.1	29	1.0	0.0	1.1	6.9	0.0	0.3
101004	Corn snack, cheese flavoured (<i>Snak jagung berperisa keju</i>)	100	100.0	499	3.1	9.3	24.0	61.4	0.0	2.2	
	1 small packet	10	100	10.0	50	0.3	0.9	2.4	6.1	0.0	0.2
	1 medium packet	45	100	45.0	225	1.4	4.2	10.8	27.6	0.0	1.0
101005	Corn snack, chicken flavoured (<i>Snak jagung berperisa ayam</i>)	100	100.0	504	3.7	6.2	25.6	62.1	0.0	2.4	
	1 small packet	18	100	18.0	91	0.7	1.1	4.6	11.2	0.0	0.4
	1 medium packet	45	100	45.0	227	1.7	2.8	11.5	27.9	0.0	1.1
101006	Corn/rice snack, chicken flavoured (<i>Snak jagung/beras, berperisa ayam</i>)	100	100.0	457	6.3	6.4	18.2	66.9	0.0	2.2	
	1 small packet	8	100	8.0	37	0.5	0.5	1.5	5.4	0.0	0.2
101007	Corn stick, chocolate flavoured (<i>Snak jagung berperisa coklat</i>)	100	100.0	526	3.9	5.2	28.8	61.5	0.0	0.6	
	1 small packet	15	100	15.0	79	0.6	0.8	4.3	9.2	0.0	0.1
101008	Pop corn, durian flavoured ("Pop corn" berperisa durian)	100	100.0	380	4.8	6.9	0.8	86.4	0.0	1.3	
	1 small packet	30	100	30.0	114	1.4	2.1	0.2	25.9	0.0	0.3
101009	Custard powder (<i>Tepung kastad</i>)	100	100.0	380	5.5	0.4	1.0	92.3	0.0	0.8	
	1 tablespoon	9	100	8.6	33	0.5	0.0	1.1	7.9	0.0	0.1
101010	Millet (<i>Sekati</i>); <i>Eleusine coracana</i>	100	100.0	342	11.4	8.8	1.3	73.7	1.7	3.1	
	1 tablespoon	9	100	8.5	29	1.0	0.7	0.1	6.3	0.1	0.3
	1 cup	140	100	139.6	477	15.9	12.3	1.8	102.9	2.4	4.3
101011	Oats, processed, tinned (<i>Oat dalam tin</i>); <i>Avena sativa</i>	100	100.0	369	10.0	11.8	4.0	71.4	1.5	1.3	
	1 tablespoon	8	100	5.7	21	0.6	0.7	0.2	4.1	0.1	0.1
	¼ cup	43	100	43.1	159	4.3	5.1	1.7	30.8	0.6	0.6

Nutrient Composition of Malaysian Foods (Tee et al., 1997)

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1.01 Cereals and cereal products

STATUS AND NATURE OF NATIONAL FCD: 1997

No.	Name of food	Nutrient composition of edible portions											
		Minerals					Vitamins						
		Ca mg	P mg	Fe mg	Na mg	K mg	Retinol µg	Carotenes µg	RU µg	B1 mg	B2 mg	Niacin mg	C mg
1.01 Cereals and cereal products (continued)													
101001	Barley, pearl (<i>Beras Belanda</i>); <i>Hordeum vulgare</i>	23	225	2.6	2	73	0	0	0	0.14	0.03	3.4	1.7
	1 tablespoon	3	29	0.3	0	9	0	0	0	0.02	0.00	0.4	0.2
	¼ cup	12	116	1.3	1	38	0	0	0	0.07	0.02	1.8	0.9
101002	Maize (<i>Jagung</i>); <i>Zea Mays</i>	45	224	2.9	11	76	0	256	43	0.22	0.12	1.7	8.8
	1 tablespoon	6	31	0.4	2	10	0	35	6	0.03	0.02	0.2	1.2
	1 cup	100	498	6.4	24	169	0	569	95	0.49	0.27	3.8	19.5
101003	Corn flour; maize flour (<i>Tepung jagung</i>)	15	155	1.4	11	24	0	0	0	0.06	0.02	0.2	2.4
	1 tablespoon	1	13	0.1	1	2	0	0	0	0.00	0.00	0.0	0.2
101004	Corn snack, cheese flavoured (<i>Snak jagung berperisa keju</i>)	111	114	3.3	483	55	74	117	94	0.06	0.25	0.0	3.9
	1 small packet	11	11	0.3	48	5	7	12	9	0.01	0.03	0.0	0.4
	1 medium packet	50	51	1.5	217	25	33	53	42	0.03	0.11	0.0	1.8
101005	Corn snack, chicken flavoured (<i>Snak jagung berperisa ayam</i>)	14	51	2.6	703	46	49	50	57	0.00	0.00	0.5	1.7
	1 small packet	3	9	0.5	127	8	9	9	10	0.00	0.00	0.1	0.3
	1 medium packet	6	23	1.2	316	21	22	23	26	0.00	0.00	0.2	0.8
101006	Corn/rice snack, chicken flavoured (<i>Snak jagung/beras, berperisa ayam</i>)	7	63	0.8	506	34	65	38	71	0.00	0.07	1.4	1.6
	1 small packet	1	5	0.1	40	3	5	3	6	0.00	0.01	0.1	0.1
101007	Corn stick, chocolate flavoured (<i>Snak jagung berperisa coklat</i>)	29	71	1.4	18	83	54	32	59	0.01	0.10	1.4	3.5
	1 small packet	4	11	0.2	3	12	8	5	9	0.00	0.02	0.2	0.5
101008	Pop corn, durian flavoured ("Pop corn" berperisa durian)	18	71	1.5	282	85	30	146	54	0.05	0.17	0.7	2.9
	1 small packet	6	21	0.5	85	26	9	44	16	0.02	0.05	0.2	0.9
101009	Custard powder (<i>Tepung kastad</i>)	13	11	0.4	117	29	7	0	7	0.00	0.16	4.7	0.0
	1 tablespoon	1	1	0.0	10	2	1	0	1	0.00	0.01	0	0
101010	Millet (<i>Sekati</i>); <i>Eleusine coracana</i>	440	156	7.5	53	398	0	33	6	0.30	0.05	0.7	0.0
	1 tablespoon	37	13	0.6	5	34	0	3	0	0.03	0.00	0.1	0.0
	1 cup	614	218	10.5	74	556	0	46	8	0.42	0.07	1.0	0.0
101011	Oats, processed, tinned (<i>Oat dalam tin</i>); <i>Avena sativa</i>	48	282	4.2	8	242	0	32	5	0.46	0.09	0.8	0.0
	1 tablespoon	3	16	0.2	0	14	0	2	0	0.03	0.01	0.0	0.0
	¼ cup	21	122	1.8	3	101	0	14	2	0.20	0.04	0.3	0.0

Nutrient Composition of Malaysian Foods (Tee et al., 1997)

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1.01 Cereals and cereal products

1. NATIONAL TECHNICAL WORKING GROUP (TWG)

- Formed in 2010
- Secretariat at Nutrition Division, MOH Malaysia

TERM OF REFERENCE

- To coordinate the standardization of the methods for nutrients and non-nutrient analysis of Malaysian foods among the institutions.
- To coordinate the documentation and publication of the collation and updates of Malaysian Food Composition Database (FCD) at a regular interval.

MEMBERS OF TWG FOR MyFCD

- **Ministry of Health Malaysia** (Institute for Public Health, Institute for Medical Research, Nutrition Division, Food Safety & Quality Division)
- **Ministry of Science, Technology and Innovation** (Department of Chemistry)
- **Universities** (Universiti Putra Malaysia, Universiti Kebangsaan Malaysia, Universiti Sains Malaysia, International Islamic University, Universiti Malaysia Sabah, Universiti Malaysia Terengganu, Universiti Teknologi Mara).
- **Research Institutes** (Malaysian Agricultural Research and Development Institute (MARDI); Malaysian Palm Oil Promotion Board (MPOB)).
- **Professional Body** (Nutrition Society of Malaysia)
- **Ministry of Agriculture and Agro-based Industry** (Department of Fishery)

PLAN OF ACTION OF NATIONAL TWG OF MALAYSIAN FCD 2011

No	Activities	Responsible institutions	Plan of implementation
1.	Preparation and printing of the protocol for sampling and analysis of Malaysian FCD	National TWG of FCD	Oct 2011
2.	Software for Malaysian FCD	National TWG of FCD	Jan-Dec 2011
3.	Collation and updates of Malaysian FCD	All institutions	Nov 2011
4.	To upgrade the lab capacity for nutrient analysis	All institutions	Jan-Dec 2011/ongoing
5.	Analysis plan of food samples according to priority - Raw and processed food analysis for 24 nutrients by Chemistry Department	National TWG of FCD	By August 2011

UPDATES OF MALAYSIAN FCD

Phase 1: PROTOCOL FOR SAMPLING AND METHODS OF ANALYSIS OF MyFCD

- Harmonisation of the protocols among the participating parties.
- Sampling of foods
- Laboratory methods of analysis
- Protocol for collection and handling of raw, processed and prepared (food as consumed) food samples
- Food listing of all the foods to be included in the revised MyFCD

ANALYTICAL METHOD USED FOR MyFCD: PROXIMATE ANALYSIS

No.	Type of nutrient	Methods of analysis	Method Reference	Nature of Sample
1.	Moisture content	Air oven (convection)	AOAC, 1984 Modified method by UKM	Most samples
		Vacuum oven	Doc. No. J04-002 Modified method by MKAK	Food samples containing high protein, sugar and fat contents
		Infra-red	Nielsen S. S., 1994 Modified method by UKM	Cereal and flour based products
2.	Protein	Kjeldahl	Doc. No. J04-004 Modified method by MKAK	Refer to Table 5
3.	Fat	Soxhlet	Doc. No. J04-009 Modified method by MKAK	Wet and dry samples
4.	Total carbohydrate	By difference (calculation)	Doc. No. J04-013 Modified method by MKAK	All samples

ANALYTICAL METHOD USED: PROXIMATE ANALYSIS

No.	Type of nutrient	Methods of analysis	Method Reference	Nature of Sample
5.	Total Ash	Dry ashing	Doc. No. J04-003 Modified method by MKAK	All samples
6.	Total dietary fibre (TDF)	Enzymatic gravimetric method	AOAC Method 991.43, 1991	Total, soluble and insoluble fiber content
7.	Total sugar	Extraction HPLC & RI detector	Wills <i>et al.</i> , 1980 Modified method by UKM	Most samples. Sucrose, fructose, maltose, glucose and lactose
8.	Energy	Calculation	Doc. No. J04-013 Modified method by MKAK	All samples

ANALYTICAL METHOD USED: MINERAL

Item	Type of minerals	Methods of analysis	Method Reference	Nature of samples
1.	Digestion based on food matrix	Dry Ashing	Tee <i>et al.</i> , 1997	Most samples
		Wet Digestion	Sim <i>et al.</i> , 2006	Most samples
		Microwave Digestion	Miller R.O, 1998 Modified method by UMS	All samples
2.	Calcium (Ca) Ferum (Fe) Natrium (Na) Kalium (K) Magnesium (Mg) Copper(Cu) Zinc (Zn)	Atomic Absorption Spectrometer – Flame	Modified method by IMR	All samples
		ICP-MS	Hua Zou & Jiang Hui Liu, 1997 Chamberlain, I <i>et al.</i> , 2000 Baker, S.A. <i>et al.</i> , 1999 Modified method by IMR	All samples

ANALYTICAL METHOD USED: MINERAL

Item	Type of minerals	Methods of analysis	Method Reference	Nature of samples
3.	Selenium (Se)	ICP-MS	Hua Zou & Jiang Hui Liu, 1997, Chamberlain, I <i>et al.</i> , 2000, Baker, S.A. <i>et al.</i> , 1999 Modified method by IMR	All samples
4.	Iodine	ICP-MS	Khalid B. & Fabien B., 2006-2009	All samples
5.	Phosphorus (P)	Spectrophotometry	Tee <i>et al.</i> , 1997	All samples
6.	Manganese(Mn)	ICP-MS	Hua Zou & Jiang Hui Liu, 1997, Chamberlain, I <i>et al.</i> , 2000, Baker, S.A. <i>et al.</i> , 1999 Modified method by IMR	All samples

FAT SOLUBLE VITAMINS

Item	Type of vitamins	Methods of analysis	Method Reference	Nature of samples
1.	Vitamin A (Retinol)	High Performance Liquid Chromatography (HPLC) with UV detector	Tee <i>et al.</i> , 1997	All samples
	Carotenoids	HPLC with UV detector	Tee <i>et al.</i> , 1997	All samples
2.	Vitamin D	HPLC with UV detector	AOAC 995.05, 2000	Infant formulas and Enteral Product
		HPLC with UV detector	Jasinghe, V.J. & Perera, C.O., 2005	All samples

FAT SOLUBLE VITAMINS

Item	Type of vitamins	Methods of analysis	Method Reference	Nature of samples
3.	Vitamin E	HPLC with fluorescence detector	Fairus S <i>et al.</i> , 2006, Cunha S.C <i>et al.</i> , 2006, Nesaretnam K <i>et al.</i> , 2007, Kawakami Y <i>et al.</i> , 2007, Nielsen M.M & Hansen A., 2008 Modified method by MPOB	All samples
		HPLC with fluorescence/UV detector	A.O.C.S, 1990	All samples
4.	Vitamin K	HPLC with UV detector	AOAC 999.15, 2000	Milk and infant formulas

Internal and External Quality Control

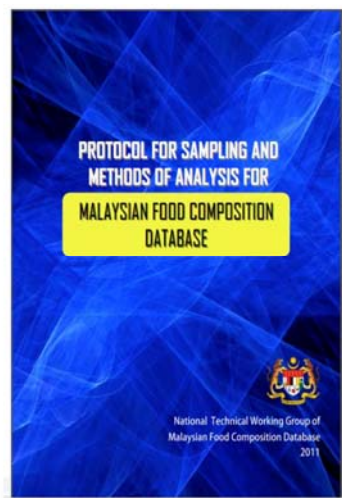
- Every participating laboratory involves in the analysis of nutrients will be tested for competence before engaging with the actual analysis.
- It is a pre-requisite to indicate their laboratory performances in order to minimize inter-laboratories variations; hence producing precise and accurate results.
- Comparisons of results can be made with other participating laboratories to ensure the results are centred on a mean value, not on the extremes of the distribution. The statistics of a normal distribution mean that about 95% of data will lie between $\pm 2SD$.

Internal and External Quality Control

- The analysis of external quality check sample will be conducted twice a year for certain critical parameters especially the mandatory nutrients (mainly proximates).
- Distributions of blind check samples will be coordinated by Chemistry Department consisting of Proficiency Test (PT) samples and Standard Reference Material (SRMs) provided by Chemistry Department as Quality Control (QC) Coordinator.
- Chemistry Department will assess the results of participating laboratories and submit the assessment report.
- Nevertheless, every individual laboratory should perform their Internal Quality Control to minimize deviations and eliminate outliers.

PROTOCOL FOR SAMPLING AND METHODS OF MyFCD (Published in 2011)

- Part I:**
Sampling of foods
- Part II:**
Protocol for collection and handling of raw, processed and prepared (food as consumed) food samples
- Part III:**
Laboratory methods of analyses
- Part IV:**
Food list
Contain food listing of all the foods to be included in the revised FCD which have been coded as accordingly using extension:
- R: Revised code – new and 1997 food items which have been given new codes.
 - N: New food items
- _: Without any extension- Food items previously included on Malaysian 1997 FCD.



UPDATES OF MALAYSIAN FCD

- The updated version of this food composition database will include new nutrients that are essential to human health such as vitamin D, E, K, iodine, selenium and manganese.
- This data will definitely supplement the information in the existing Malaysian and ASEAN food composition databases which can be used as a fundamental data for estimation of vitamin D, E, K, iodine, selenium and manganese intake, recommendations for prevention, treatment and management of nutrition-related diseases.
- It will also include new foods that are highly consumed by the Malaysian population.
- 1010 new foods (442 raw and processed foods, and 668 prepared foods) that are commonly consumed by the Malaysian population

MyFCD: A - MANDATORY NUTRIENTS

No.	Nutrient	Unit
1	Energy	Kcal
2	Water	g
3	Protein	g
4	Fat	g
5	Carbohydrate, by difference	g
6	Total Dietary Fibre, TDF	g
7	Ash	g
8	Calcium, Ca	mg
9	Iron, Fe	mg
10	Magnesium, Mg	mg
11	Phosphorus, P	mg
12	Potassium, K	mg
13	Sodium, Na	mg
14	Zinc, Zn	mg
15	Copper, Cu	mg
16	Selenium, Se	µg
17	Manganese, Mn	µg
18	Iodine	µg

No.	Nutrient	Unit
19	Ascorbic Acid (Vitamin C)	mg
20	Thiamin (B1)	mg
21	Riboflavin (B2)	mg
22	Niacin (B3)	mg
23	Folic Acid (B9)	µg
24	Vitamin A (Retinol)	µg
25	Carotenoid	µg
	α-carotene	µg
	β-carotene	µg
	Lycopene	µg
	Lutein	µg
26	Vitamin D	µg
27	Vitamin E	mg
28	Vitamin K	µg
29	Total sugar (Mandatory for cereal based foods, fruit and beverages)	g
	Sucrose	g
	Glucose	g
	Fructose	g
	Lactose	g
	Maltose	g

MyFCD: B - OPTIONAL NUTRIENTS

No.	Nutrient	Unit	Results / 100 g sample
1	Pantothenic Acid (B5)	mg	
2	Pyridoxine (B6)	mg	
3	Cobalamin (B12)	µg	
4	Choline	mg	
5	Biotin (B7)	mg	
6	Fatty acid, total saturated fat	g	
	4:0	g	
	6:0	g	
	8:0	g	
	10:0	g	
	12:0	g	
	14:0	g	
	16:0	g	
	18:0	g	
7	Fatty acids, total monounsaturated fat	g	
	16:1	g	
	18:1	g	
	20:1	g	
	22:1	g	

No.	Nutrient	Unit	Results / 100 g sample
	18:2	g	
	18:3	g	
	18:4	g	
	20:4	g	
	20:5	g	
9	Trans fatty acids	g	
10	Cholesterol	mg	
11	Amino Acid:	g	
	Tryptophan	g	
	Threonine	g	
	Isoleucine	g	
	Leucine	g	
	Lysine	g	
	Methionine	g	
	Phenylalanine	g	
	Valine	g	

STATUS AND NATURE OF THE 1997 MALAYSIAN FCD: CODE SYSTEM

Raw and processed food

1	01	001
Section no, (1 or 2)		
Food group no (1-14)		
		Food item no

Cooked food

2	1	1	001
Section no, (1 or 2)			
Sub-section no (1-3)			
		Food group no	
			Food item no

PROPOSED MyFCD: CODE SYSTEM

Raw and processed food

R/N	1	01	001
	Section no, (1 or 2)		
	Food group no (1-14)		
			Food item no

Prepared food

R/N	2	1	1	001
	Section no, (1 or 2)			
	Sub-section no (1-3)			
			Food group no	
				Food item no

FOOD GROUPS OF 1997 MALAYSIAN FCD

SECTION 1: RAW AND PROCESSED FOODS	
Food Group	Code
Cereals and grain products	1.01
Starchy roots, tubers and products	1.02
Legumes and legume products	1.03
Nuts, seeds and products	1.04
Vegetables and vegetable products	1.05
Fruits and fruit products	1.06
Sugars and syrups	1.07
Meat and meat products	1.08
Eggs	1.09
Fish, shellfish and products	1.10
Milk and milk products	1.11
Oils and fats	1.12
Beverages	1.13
Miscellaneous	1.14

SECTION 2: COOKED FOODS		
		Code
2.1 Traditional Malaysian Kuih	Rice and rice flour based	2.1.1
	Wheat flour based	2.1.2
	Miscellaneous	2.1.3
2.2 Cooked dishes and meals	Cereal based	2.2.1
	Meat dishes	2.2.2
	Fish and sea-food dishes	2.2.3
	Miscellaneous	2.2.5
2.3 Franchised "fast food"	Chicken	2.3.1
	Burger	2.3.2
	Pizza	2.3.3
	Spaghetti	2.3.4
	Sandwiches	2.3.5
	Satay	2.3.6
	Miscellaneous	2.3.7

PROPOSED FOOD GROUPS FOR MyFCD

SECTION 1: RAW AND PROCESSED FOODS	
Food Group	Code
Cereals and grain products	1.01
Starchy roots, tubers and products	1.02
Legumes and legume products	1.03
Nuts, seeds and products	1.04
Vegetables and vegetable products	1.05
Fruits and fruit products	1.06
Sugars and syrups	1.07
Meat and meat products	1.08
Eggs	1.09
Fish, shellfish and products	1.10
Milk and milk products	1.11
Oils and fats	1.12
Beverages	1.13
Miscellaneous	1.14

SECTION 2: PREPARED FOODS		
		Code
2.1 Traditional Malaysian Kuih	Rice and rice flour based	2.1.1
	Wheat flour based	2.1.2
	Legume based	2.1.3
	Glutinous rice based	2.1.4
	Tuber based	2.1.5
	Bubur and pengat	2.1.6
2.2 Cooked dishes and meals	Miscellaneous	2.1.7
	Cereal based	2.2.1
	Meat dishes	2.2.2
	Fish and sea-food dishes	2.2.3
	Vegetable dishes	2.2.4
2.3 Franchised "fast food"	Miscellaneous	2.2.5
	Chicken	2.3.1
	Burger	2.3.2
	Pizza	2.3.3
	Spaghetti	2.3.4
	Sandwiches	2.3.5
	Satay	2.3.6
Miscellaneous	2.3.7	

UPDATES OF MALAYSIAN FCD

Phase 2: DEVELOPMENT OF A WEB BASED VERSION OF MyFCD

Activities

- Centralizing the coordination, compilation and documentation of the data analysis by the participating institution through a web-based system for Data Generators, Data Compilers and Data Users (<http://myfcd.moh.gov.my>).
- In 2011, IMR has managed to secure research fund for 3 years from IMR/National Institute of Health for updating MyFCD and collaborates with Chemistry Department and Malaysian Palm Oil Board for analysis of raw and processed foods.
- In 2012, Nutrition Division provides some funding to IMR to do the nutrient analysis.

USES OF 1997 FCD

The screenshot shows the nutriWEB Malaysia website interface. The browser address bar displays <http://www.nutriweb.org.my/searchfood.php>. The website header includes the logo for nutriWEB MALAYSIA and the tagline "Your window to good eating habits and healthy lifestyle". Navigation links include "Free Nutrition E-Cards", "Food Database", "Healthful Recipes", "Calories Content", and "Jobs Bulletin Board". The main content area is titled "Malaysian Foods Composition Database" and features a search form with the following fields:

- Food Name:
- Food Section:

A "Contact Us" box on the right side of the search form contains the text: "Any thing you would like to tell us? Any comments, suggestions, or questions?" and a note: "NOTE: Fill up questions or comments to give feedback to nutriweb that questions with no full name and address will not be answered."

USES OF 1997 FCD

Database of Nutrient Composition of Malaysian Foods - Mozilla Firefox

http://www.nutriweb.org.my/cgi-bin/dbsearch.cgi

nutriWEB MALAYSIA Your window to good eating habits and healthy lifestyle

Free Nutrition E-Cards Food Database Healthful Recipes Calories Content Jobs Bulletin Board

>> Home > Nutrition Composition Database

Number of Records : 2

Back to Search

Food Name	Food No	Food Group	Composition
Roti canai (Roti canai)	221023	Cooked Dishes and Meals	Proximate, Minerals, Vitamins
Yellow dhal gravy (serve with Roti canai/Roti tehr) (Kuah kacang dal kuning dihidang dengan Roti canai /Roti tehr)	221025	Cooked Dishes and Meals	Proximate, Minerals, Vitamins

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zotero

ELECTRONIC DATABASE

- A web-based system
- Was developed in stages since 2011 for:
 - Data Generators,
 - Data Compiler and
 - Data Users
- Outsourcing to MMCA Sdn. Bhd.
- Training for electronic database for data compilers is still on-going

A web-based system
<http://myfcd.moh.gov.my>

Example for USERS

MyFCD Malaysian Food Composition Database

WELCOME TO MALAYSIAN FOOD COMPOSITION DATABASE (MYFCD)

The nutrient data can be accessed quickly and easily using latest technologies such as mobile devices and tablets. There is an additional of more food groups with 441 raw and processed foods as well as 668 prepared foods which were not included in the previous 1997 Malaysian FCD.

SEARCH HERE

Foods Database

Browse the latest nutrient data, including an online searchable database of foods and nutrients, also available in the Nutrient Composition of Malaysian Foods 1997.

CURRENT 1997 FCD INDUSTRY

Malaysian Food Nutrient Composition

Search for: << Clear

Category:

Code Food Item

- 101001 Barley, pearl (Beras Belanda); Hordeum vulgare
- 101002 Maize (Jagung) Zea Mays
- 101003 Corn flour, maize flour (Tepung jagung) Zea Mays
- 101004 Corn snack, cheese flavoured (Snek jagung berperisa keju)
- 101005 Corn snack, chicken flavoured (Snek jagung berperisa ayam)
- 101006 Corn/rice snack, chicken flavoured (Snek jagung/beras, berperisa ayam)
- 101007 Corn stick, chocolate flavoured (Snek jagung berperisa coklat)
- 101008 Pop corn, durian flavoured ("Pop corn" berperisa durian)
- 101009 Custard powder (Tepung kastad)
- 101010 Millet (Sekol); Eleusine coracana

Gram Edible Portion g

Item Selected

Serving Size: 1 tablespoon, 1/4 cup, 1 tablespoon, 1 cup

Energy Kcal

Water g

Protein g

Fat g

CHO g

Fibre g

Ash g

Ca mg

P mg

Fe mg

Na mg

K mg

Retinol ug

Carotenes ug

RE ug

B1 mg

B2 mg

Niacin mg

C mg

Print

Create Nutrient Composition Table

Close

UPDATES OF MALAYSIAN FCD

Phase 3: Development of Scoring System for Data Collation of MyFCD

Activities

- Collation of published data in articles/reports/thesis/conferences
- Reviewing scoring system published by USDA & EuroFIR on data quality evaluation
- Internal workshop to develop data quality evaluation system for MyFCD

SCORING SYSTEM FOR DATA COLLATION OF MyFCD

- Kategori 1: *Food Description Criteria*
- Kategori 2: *Component Identification*
- Kategori 3: *Sampling Plan*
- Kategori 4: *Number of Analytical Samples*
- Kategori 5: *Sample Handling*
- Kategori 6: *Sample Processing*
- Kategori 7: *Analysis*
- Kategori 8: *Analytical Quality Control*

SCORING FORM FOR DATA COLLATION OF MyFCD

No	CATEGORY 1: FOOD DESCRIPTION CRITERIA	Yes	No	N/A
1	Is the food group (e.g. cereals and grain product, meat and meat products, traditional Malaysian <i>kulih</i> , cooked dishes and meal, franchised fast foods etc.) known?			
2	Was the food source of the food or of the main ingredient clearly provided?			
3	Was the edible part clearly indicated?			
4	Was the analyzed portion described?			
5	Was the extent of heat treatment provided?			
6	If the food was cooked, were satisfactory cooking method details provided?			
7	Was information about the geographical origin of the food provided?			
8	Was the month or season of production indicated? e.g. festive season)			

	CATEGORY 2: COMPONENT IDENTIFICATION	Yes	No	N/A
1	Is the component/nutrient described?			
2	Is the unit unambiguous?			
	CATEGORY 3: SAMPLING PLAN	Yes	No	N/A
1	Was the sample representative?			
2	Was the sampling plan developed?			
3	Were samples taken from the most important sales outlets (supermarket, local grocery, street market, restaurant, household etc.)?			
4	Was more than one brand (for manufactured pre-packed product) or more than one cultivar (for plant foods) or subspecies (for animal foods) sampled?			

SCORING FORM FOR DATA COLLATION OF MyFCD

5	Is there different lots (or individual samples) collected in each location?			
6	Was the sampling done during more than one time?			
	CATEGORY 4: NUMBER OF ANALYTICAL SAMPLES	Yes	No	N/A
1	Is the number of analytical samples 1, 2, 3, 4 or ≥5?			
	CATEGORY 5: SAMPLE HANDLING	Yes	No	N/A
1	Were appropriate stabilization treatments applied?			
2	Is homogenization necessary for this type of sample?			
3	Was the sample homogenized?			
4	Was only the edible portion used for analysis?			
5	Was moisture information/expression stated?			
6	Were samples stored properly? (e.g. frozen/refrigerated)			
7	Does duration from sampling to analysis stated?			

	CATEGORY 6: SAMPLE PROCESSING	Yes	No	N/A
1	If high starch foods analyzed, were they treated with appropriate enzymatic digestion?			
2	If high protein foods analyzed, were they treated with appropriate enzymatic digestion or protein precipitation?			
3	Was purity and efficiency of enzyme preparations stated?			
4	Were samples kept frozen until beginning extraction?			
	CATEGORY 7: ANALYSIS	Yes	No	N/A
1	Does the analytical method using established method or accredited?			
2	Was the sample protected from light during analysis (if necessary)?			
3	Was any pre-treatment needed prior to analysis?			
4	Were pure standards used?			

PROBLEMS/NEEDS/RECOMMENDATIONS

No	PROBLEMS	NEEDS	RECOMMENDATIONS
1.	Poor data quality	Generation of good quality data	<ul style="list-style-type: none"> Use of Internal and external QC Participation in PT
2.	Delay in data generation for MyFCT	Budget for speeding the generation of data analysis by participating parties	<ul style="list-style-type: none"> Use of limited internal funding Looking for sponsorship
3.	Published data not under FCD programme	Development of scoring system & Evaluation of data quality from collation of published data	<ul style="list-style-type: none"> User-friendly system
4.	Lack of supporting staffs	Development of capacity building	Participation in FCD training workshop

Pre-test on published data

Food Research Journal 19(1): 189-197 (2012)

Determination of folate content in commonly consumed Malaysian foods ^{La}

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^{La}: Currently, data concerning the content of naturally occurring dietary folate in Malaysia. The aim of this study was to determine the folate content of vegetables, fruits, legumes and commonly consumed among Malaysians. The total folate content of 156 samples (51 vegetables, 51 fruits and legume products, and 50 cereals and cereal products) available in Malaysia was determined using a microbiological assay using *Lactobacillus casei* (L. casei) after trypsin treatment with protease, and optical density (OD) at 540 nm. An internal quality control system was used throughout the study. The mean folate content of the samples was 1.11 µg/100 g (wholemeal flour) and 1.31 µg/100 g (lyophilized mixed vegetables); percent coefficient of variation (CV) of 97 ± 2.0 and 101 ± 4.0 was obtained. The range of folate content in vegetables, fruits and cereals was 0.1-1.1 µg/100 g and 1.3-3.1 µg/100 g on the basis of fresh weight and 1.3-3.1 µg/100 g and 2-156 µg/100 g on the basis of dry weight, respectively. This study has shown that some of these underutilized vegetables and fruits are good sources of folate and could fulfill the recommended dietary intake of total folate.

^{La}: Folate, Malaysia, vegetable, fruit, legume, cereal

5	Were standards prepared daily or as required?			
6	Were at least three concentrations of a standard used for external calibration or was an internal calibration used?			
7	Was deviation of prepared standard from expected value being controlled?			
8	Were there any confirmation of analyte carried out?			
9	If the sample involve derivatization, is it analyse within 24 hours?			
CATEGORY 8: ANALYTICAL QUALITY CONTROL		Yes	No	N/A
1	Were analytical portion replicates tested?			
2	Was the laboratory accredited for this method or was the method validated by performance testing?			
3	If available, was an appropriate reference material (CRM or secondary QC) used?			
4	Was a control or reference QC material analyzed with the analytical samples?			
5	Were the QC material results closed to the expected values?			

THANK YOU