MALAYSIAN FOOD COMPOSITION DATA
Process on Evaluation of Data

National Technical Working Group of Malaysian FCD

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GENERATION OF MALAYSIAN FCD

- The first comprehensive Food Composition Table in Malaysia was published in 1988 (*Tee et al., 1988*).
- Most of data were analysed by various participating institutions
- The latest Food Composition Table was published in 1997 (*Tee et al., 1997*).

GENERATION OF MALAYSIAN FCD

- The latest Food Composition Table was published in 1997 (*Tee et al., 1997*).
- New nutrients have been added e.g. cholesterol, DF, FA, AA, certain minerals
- Again, majority of data were derived from analytical methods
- No report on data collation for 1997 FCT

PROGRESS OF MALAYSIAN FCD 2011

- **Since 1997, no updating on our FCT.**
- **In 2010, our TWG on Malaysia FCT was officially formed.**
- **Collation** and updates of Malaysian Food Composition Database has been identified as one of the Seven Research Priority Areas for Nutrition for Malaysia under the 10th Malaysia Plan (2011-2015).

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

ANALYTICAL METHOD USED FOR MALAYSIAN FCD (2011)

ANALYTICAL METHOD USED: 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 *et al.*, 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 *et al.*, 1997	Most samples
		Wet Digestion	Sim *et al.*, 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 *et al.*, 2000 Baker, S.A. *et al.*, 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 *et al.*, 2000, Baker, S.A. *et al.*, 1999 Modified method by IMR	All samples
4.	Iodine	ICP-MS	Khalid B. & Fabien B., 2006-2009	All samples
5.	Phosphorus (P)	Spectrophotometry	Tee *at al.*, 1997	All samples
6.	Manganese(Mn)	ICP-MS	Hua Zou & Jiang Hui Liu, 1997, Chamberlain, I *et al.*, 2000, Baker, S.A. *et al.*, 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 *et al.*, 1997	All samples
	Carotenoids	HPLC with UV detector	Tee *et al.*, 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 *et al.*, 2006, Cunha S.C *et al.*, 2006, Nesaretnam K *et al.*, 2007, Kawakami Y *et al.*, 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

COLLATION CRITERIA OF MALAYSIAN FCD 2011

Where are we now?

- We had discussed during our TWG meeting on criteria – not comprehensive
- Our proposal on data collation should be
  - Published/peer-reviewed articles – national and international journals
  - Details description on sampling, method of analysis, quality control
  - Mode of expression
  - Publication year

Problems and Solutions

- Not all data published in peer-reviewed journals – there are many unpublished data e.g undergraduate thesis, institutional reports for internal use etc
- However, we had no agreement on data evaluation.
- Our TWG had planned to rank these data based on "quality index"
  - A for "good" data quality with certain criteria
  - B for " moderate"
  - C for "low"
- No details criteria have been discussed.
- We need help/advise from INFOODS and ASEANFOODS

THANK YOU