

Current status of FCD system

- Singapore -

18 July 2011

ASEANFOODS Workshop and Meeting
Mahidol University, Thailand

- Database system:
Food Composition System Singapore (FOCOS)
- Sources of data:
 - Local lab analysis
 - Borrowed data (US, Aus, M'sia etc)
 - Calculated from recipes
- Coding: Numeric (e.g. 01070007)
 - "01": food group
 - "07": sub-food group
 - "0007": serial running number

- Food groups
 - Cereal grains and products
 - Vegetables and vegetable products
 - Nuts, seeds, pulses and products
 - Fruits and fruit products
 - Meat and meat products
 - Egg and egg products
 - Fish and fish products
 - Milk and dairy products
 - Sugars, sweets and confectionary
 - Oils and fats

- Beverages
- Miscellaneous (herbs, spices, sauces etc)
- Composite foods (analyzed locally)
- Healthier Choice Symbol products
- Recipes

• Nutrients (food)

Water	Vitamin B1
Energy	Vitamin B2
Protein	Vitamin C
Total fat	Calcium
Saturated fat	Iron
Monounsaturated fat	Sodium
Polyunsaturated fat	Potassium
Starch	Phosphorus
Total sugars	Zinc
Dietary fibre	Selenium
Cholesterol	
Vitamin A	Limited info:
Beta-carotene	Trans fat
Retinol	Omega-3
	Vitamin B6
	Vitamin B12
	Folate
	Vitamin D

- Expression of nutrient values (for locally analysed items)
 - Energy calculated from total carbohydrate, protein and fat (4-4-9)
 - Carbohydrate: sum of starch and sugars
 - Fat: sum of fatty acids
 - Vitamin A: sum of retinol and one-sixth beta-carotene
 - Protein calculated from nitrogen (Pearson's composition and analysis of foods, 9th edition)

Type of ingredient	Factor	Type of ingredient	Factor
Egg whole	6.38	Barley	5.83
Gelatin and collagen	5.55	Beans	6.25
Groundnuts	5.46	Maize	6.31
Meat	6.25	Oats	5.83
Milk products	6.38	Rice	5.95
Almonds	5.18	Rye products	5.83
Other nuts	5.30	Wheat whole	5.83
		Wheat bran	6.31
		Wheat macaroni	5.70
		Wheat flours (except wholemeal)	5.70
		All other foods	6.25

- Quality assurance/control
 - Appointed lab must have accreditation for test methods, awarded by recognised accreditation body
 - Participation in proficiency programmes e.g. FAPAS, FOSFA, AOCS proficiency series

- Sampling and preparation

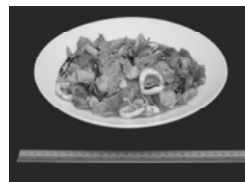
- Typically 3-5 samples, from various parts of the island
- If product-specific, different batch (based on manufacture date) will be sampled
- Samples stored in cool box
- Different samples mixed and homogenised in blender (composite dishes may first require manual separation and grinding of ingredients)

- Sampling and preparation

- Homogenised samples divided into portions, sealed and stored in freezer (-18 deg C)
- Portions divided for the following analysis:
 - Moisture, protein, fat, starch, sugars, dietary fibre, metals
 - Oil extraction for fatty acids, cholesterol
 - Retinol, beta-carotene, vitamin B1, vitamin B2
 - Vitamin C
- Extra portions kept as retention samples



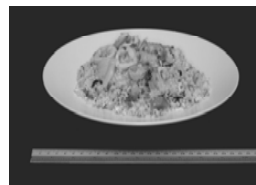
Mee rebus (570g)



Fried hor fun (690g)



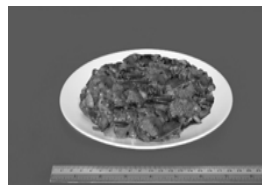
Fried beehoon (300g)



Fried rice (430g)

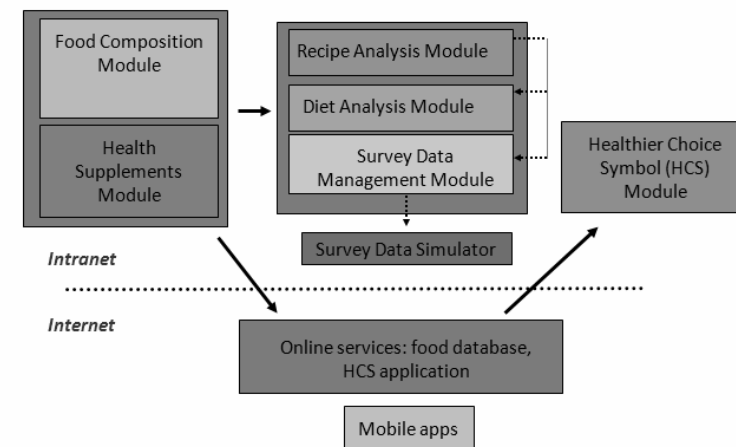


Stir-fried leafy vegetable (330g)



Stir-fried chicken (310g)

FOCOS



Server 1: Welcome, Lim Heng Thiam [Logout]

Home Food Composition Health Supplement Recipe Analysis Diet Analysis Survey Administration

Home

Module	Active Record Count	Deleted Record Count	New Count
Food Composition Module	3982	195	54
Health Supplement Module	414	11	62
Recipe Analysis Module	10506	26	15
Diet Analysis Module	0	0	0

Food Composition System Singapore (FOCOS)
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Home Food Composition Health Supplement Recipe Analysis Diet Analysis Survey Administration

Home > Food Composition Module

Food Composition Module (FCM)

Search (Click to expand/collapse)

Food Name: Food Code:

Scientific Name: Alternate Name:

Food Group: -- Select Food Group -- Food SubGroup: -- Select Food SubGroup --

Nutrient: -- Select Nutrient -- Special Data: -- Select Special Data --

Laboratory Tested: -- Select -- Proprietary: -- Select --

Modified Date: From To

<input type="checkbox"/>	Food Code ▲	Food Name	Food Group	Food SubGroup	Scientific Name	Alternate Name	Food Item Report
<input type="checkbox"/>	01020002	Noodles, laksa, thick, dried	CEREAL AND CEREAL PRODUCTS	Pasta and noodles and 'dough wrappers'	Nil	Mee Laksa, kering	[Click]
<input type="checkbox"/>	01020003	Noodles, laksa, thick, wet	CEREAL AND CEREAL PRODUCTS	Pasta and noodles and 'dough wrappers'	Nil	Mee laksa, basah	[Click]
<input type="checkbox"/>	01020005	Noodles, dried	CEREAL AND CEREAL PRODUCTS	Pasta and noodles and 'dough wrappers'	Nil	Mee kering	[Click]
<input type="checkbox"/>	01020006	Noodles, dried, instant, without seasoning	CEREAL AND CEREAL PRODUCTS	Pasta and noodles and 'dough wrappers'	Nil	Mee kering, segera	[Click]

Food Composition Module (FCM) : Fried hokkien noodles, with prawn

* denotes mandatory field

Food Item Profile | Nutrient Profile | Pyramid Profile | Special Data | Graphic Profile | History Profile

Food Code: 13010172
Food Group/SubGroup: MIXED ETHNIC DISHES, ANALYZED IN SINGAPORE - Cereal based dishes

* Food Name: Fried hokkien noodles, with prawns Physical Description: Fried mixture of yellow noodle and thick rice vermicelli, with added prawns and cuttlefish

Scientific Name: Alternate Name:

* Edible Portion: 100 % Refuse: 0 % Refuse Description:

* Country of Origin: Singapore * Source of Information for Nutrient Profile: ALS 2/ DON 174/ RN 23

* Laboratory Analysis? Yes No * Proprietary? Yes No

Household Measure | Yield & Retention | Pyramid Grouping

* Household Measure: -- Select -- * Weight:

* Source of Information for Serving Size: * Default Serving: Yes No

Volume: Shape: -- Select Shape --

<input type="checkbox"/>	Household Measure	Weight	Volume	Shape	Dimensions	Formula	Source of Information For Serving Size	Default Serving
<input type="checkbox"/>	Bowl-soup (16 and 1/2 cm)	442			0 x 0 x 0	-	-	Yes
<input type="checkbox"/>	Gram	1			0 x 0 x 0	-	-	No

Food Composition Module (FCM) : Fried hokkien noodles, with prawn

* denotes mandatory field

Food Item Profile | Nutrient Profile | Pyramid Profile | Special Data | Graphic Profile | History Profile

Add Nutrient | Remove Nutrient | Reset

<input type="checkbox"/>	Nutrient Name	*Amount	*Unit	Trace	*Data Type	*Imputation	*Source of Information	*IFOODS tag
<input type="checkbox"/>	Water	74.80	g	<input type="checkbox"/>	Chemical analysis (Singapore)	None	ALS 2/ DON 174/ RN 23	WATER
<input type="checkbox"/>	Energy	118	kcal	<input type="checkbox"/>	Chemical analysis (Singapore)	None	ALS 2/ DON 174/ RN 23	ENERC/kcal/
<input type="checkbox"/>	Protein	4.10	g	<input type="checkbox"/>	Chemical analysis (Singapore)	None	ALS 2/ DON 174/ RN 23	PROCNT
<input type="checkbox"/>	Total fat	4.30	g	<input type="checkbox"/>	Chemical analysis (Singapore)	None	ALS 2/ DON 174/ RN 23	FAT
<input type="checkbox"/>	Saturated fat	1.66	g	<input type="checkbox"/>	Chemical analysis (Singapore)	None	ALS 2/ DON 174/ RN 23	FASAT
<input type="checkbox"/>	Monounsaturated fat	1.74	g	<input type="checkbox"/>	Chemical analysis (Singapore)	None	ALS 2/ DON 174/ RN 23	FAMS
<input type="checkbox"/>	Polysaturated fat	0.62	g	<input type="checkbox"/>	Chemical analysis (Singapore)	None	ALS 2/ DON 174/ RN 23	FAPU
<input type="checkbox"/>	Cholesterol	30	mg	<input type="checkbox"/>	Chemical analysis (Singapore)	None	ALS 2/ DON 174/ RN 23	CHOLE
<input type="checkbox"/>	Carbohydrate	15.70	g	<input type="checkbox"/>	Chemical analysis (Singapore)	None	ALS 2/ DON 174/ RN 23	CHOAVL
<input type="checkbox"/>	Starch	11.80	g	<input type="checkbox"/>	Chemical analysis (Singapore)	None	ALS 2/ DON 174/ RN 23	STARCH
<input type="checkbox"/>	Sugar	3.90	g	<input type="checkbox"/>	Chemical analysis (Singapore)	None	ALS 2/ DON 174/ RN 23	SUGAR
<input type="checkbox"/>	Dietary fibre	1	g	<input type="checkbox"/>	Chemical analysis (Singapore)	None	ALS 2/ DON 174/ RN 23	FIBTG
<input type="checkbox"/>	Vitamin A	12	mcg	<input type="checkbox"/>	Chemical analysis (Singapore)	None	ALS 2/ DON 174/ RN 23	VITA

Food Composition Module (FCM) : Chicken, breast, raw, lean only

* denotes mandatory field

Food Item Profile | Nutrient Profile | Pyramid Profile | Special Data | Graphic Profile | History Profile

Food Code: 05010016
 Food Group/SubGroup: MEAT AND MEAT PRODUCTS - Poultry (chicken, duck, turkey, pigeon etc)
 Food Name: Chicken, breast, raw, lean only
 Physical Description: Uncooked flesh from breast portion of the chicken. All skin removed.

Scientific Name: Gallus gallus
 Alternate Name:
 Edible Portion: 62% Refuse: 38%
 Refuse Description: 38%, bone and skin
 Country of Origin: Australia
 Source of Information for Nutrient Profile: AU 08C1-004
 Laboratory Analysis? Yes No
 Proprietary? Yes No

Household Measure | Yield & Retention | Pyramid Grouping

Retention Factor (Food Category): None
 Cooking method: None
 Yield Factor:

Retention Factor (Food Category)	Cooking method	Yield Factor
<input type="checkbox"/> Chicken, brown, simmer, wo/drippings	Stew	75
<input type="checkbox"/> Chicken, brown, simmer, wo/drippings	Steam	90
<input type="checkbox"/> Chicken, simmered, wo/drippings	Boil	91
<input type="checkbox"/> Chicken, simmered, wo/drippings	Double boil	91

Scientific Name: Gallus gallus
 Alternate Name: chicken. All skin removed.
 Edible Portion: 62% Refuse: 38%
 Refuse Description: 38%, bone and skin
 Country of Origin: Australia
 Source of Information for Nutrient Profile: AU 08C1-004
 Laboratory Analysis? Yes No
 Proprietary? Yes No

Household Measure | Yield & Retention | Pyramid Grouping

Pyramid Group: Fruits, Meat & Alternatives, Pyramid tip, Rice & Alternatives, Vegetables
 Pyramid SubGroup 1: Meat, Nuts and seeds, Organ meat, Poultry, Soya bean curd
 Pyramid SubGroup 2: Chicken, Duck, Other poultry
 Pyramid Default Serving: 90

Submit Cancel

Health Supplement Module (HSM)

Search (Click to expand/collapse)

Supplement Name:
 Supplement Code:
 Supplement Group: -- Select Supplement Group --
 Nutrient: Thiamin
 Modified Date: From 16/07/2011 To 16/07/2011
 Search Export Search Result Reset Search Criteria

Add Health Supplement Delete Health Supplement Upload Health Supplement Export Health Supplement

Supplement Code	Supplement Name	Supplement Group	Nutrient Name	Nutrient Amount	Supplement Items Report
<input type="checkbox"/> 40020011	Princi-B Fort	Single minerals	Thiamin	250	[Click]
<input type="checkbox"/> 40020001	Neuroforte	Multiple vitamins	Thiamin	100	[Click]
<input type="checkbox"/> 40060021	Complete One Multivitamin	Combination of vitamins and/or minerals with other substances	Thiamin	75	[Click]
<input type="checkbox"/> 40050040	Kordel's B complex + C	Multi-vitamins and minerals	Thiamin	50	[Click]
<input type="checkbox"/> 40050238	Enervon	Multi-vitamins and minerals	Thiamin	50	[Click]
<input type="checkbox"/> 40050043	Nature Farm's B-Complex 100 (Sustained Released)	Multi-vitamins and minerals	Thiamin	50	[Click]
<input type="checkbox"/> 40050159	GNC B-Complex 50	Multi-vitamins and minerals	Thiamin	50	[Click]
<input type="checkbox"/> 40050137	GNC Big 50	Multi-vitamins and minerals	Thiamin	50	[Click]

Home Food Composition Health Supplement Recipe Analysis Diet Analysis Survey Administration

Home > Health Supplement Module > Edit Health Supplement

Health Supplement Module (HSM) : Enervon

* denotes mandatory field

Supplement Profile | Nutrient Profile | Graphic Profile | History Profile

Supplement Code: 40050238
 Supplement Group: Multi-vitamins and minerals
 Supplement Name: Enervon
 Dosage Form: Caplet
 Recommended Dose: 1 caplet daily
 Source of Information for Nutrient Profile: Label
 Remarks:

Submit Cancel

Health Supplement Module (HSM) : Enervon

[* denotes mandatory field]

Supplement Profile | Nutrient Profile | Graphic Profile | History Profile

Add Nutrient | Remove Nutrient | Reset

<input type="checkbox"/>	Nutrient Name	*Nutrient Amount	*Unit	*Source of Information	Remarks	Elemental Quantity Calculator
<input type="checkbox"/>	Thiamin	50	mg	Label		
<input type="checkbox"/>	Riboflavin	25	mg	Label		
<input type="checkbox"/>	Vitamin C	500	mg	Label		
<input type="checkbox"/>	Calcium	20	mg	Label		Convert
<input type="checkbox"/>	Vitamin B6	10	mg	Label		
<input type="checkbox"/>	Niacin	50	mg	Label		
<input type="checkbox"/>	Vitamin B12	5	mcg	Label		

Add Nutrient | Remove Nutrient | Reset

Health Promotion Board

Server 1 : Welcome, Lim Meng Thiam [Logout]

Home | Food Composition | Health Supplement | Recipe Analysis | Diet Analysis | Survey | Administration

Home » Recipe Analysis Module » Add Recipe

Recipe Analysis Module (RAM) : Add Recipe

[* denotes mandatory field]

Recipe Item Profile | Ingredient Profile | Graphic Profile

* Recipe Group: -- Select Recipe Group -- * Recipe SubGroup: -- Select Recipe Sub Group --

* Recipe Name: FCM Source Code:

Remarks: Physical Description:

Submit | Cancel | Reset

Recipe Analysis Module (RAM) : Add Recipe

[* denotes mandatory field]

Recipe Item Profile | Ingredient Profile | Graphic Profile

Recipe

* Number of Servings:

Recipe Weight:

Portion Weight:

* Food Ingredient: Search [New Food]

Food Code: Sub-Recipe:

Healthier Choice Brand (pls specify:) Remark:

* Cooking Method: Quantity: per serving:

Weight:

Pyramid Group: Pyramid Subgroup 1: Pyramid Subgroup 2: Pyramid Default Serving:

Add Ingredient | Delete Ingredient

Submit | Cancel | Reset

Recipe Analysis Module (RAM) : Bitter gourd, with egg and chilli, stir fried

Recipe Item Profile | Ingredient Profile | Nutrient Profile | Pyramid Profile | Graphic Profile | History Profile

Recipe

* Number of Servings:

Recipe Weight:

Portion Weight:

* Food Ingredient: Search [New Food]

Food Code: Sub-Recipe:

Healthier Choice Brand (pls specify:) Remark:

* Cooking Method: Quantity: per serving:

Weight:

Pyramid Group: Pyramid Subgroup 1: Pyramid Subgroup 2: Pyramid Default Serving:

Add Ingredient | Delete Ingredient

<input type="checkbox"/>	Sub Recipe	FCM Food Code	Food Ingredient	Household Measure	Cooking Method	Quantity	Per Serving	Weight	
<input type="checkbox"/>	1	06010008	Egg, hen, whole, raw	Gram	Stir-fry	100	1	100	[Edit]
<input type="checkbox"/>	1	12010029	Turmeric, root, dried	Gram	Stir-fry	2.80	1	2.80	[Edit]
<input type="checkbox"/>	1	12010018	Salt, table	Gram	Stir-fry	5	1	5	[Edit]
<input type="checkbox"/>	1	02020017	Gourd, bitter, raw	Gram	Stew	500	1	500	[Edit]
<input type="checkbox"/>	1	02030021	Onion, large, raw, peeled	Gram	Stir-fry	110	1	110	[Edit]
<input type="checkbox"/>	1	02030014	Garlic, raw	Gram	Stir-fry	6	1	6	[Edit]
<input type="checkbox"/>	1	02020011	Chilli, red, raw	Gram	Stir-fry	30	1	30	[Edit]
<input type="checkbox"/>	1	10010001	Oil, blended	Gram	Stir-fry	45	1	45	[Edit]

Recipe Analysis Module (RAM) : Bitter gourd, with egg and chilli, stir fried

Recipe Item Profile | Ingredient Profile | Nutrient Profile | Pyramid Profile | Graphic Profile | History Profile

View Details

Nutrient Name	Unit	Per Serving	Per 100g
Water	g	49.11895	36.35414
Energy	kcal	134.65839	99.66398
Protein	g	3.55791	2.63329
Total fat	g	11.111	8.22353
Saturated fat	g	4.26206	3.15445
Monounsaturated fat	g	4.95982	3.67088
Polyunsaturated fat	g	1.45627	1.07782
Cholesterol	mg	66.99	49.58094
Carbohydrate	g	4.79664	3.55011
Starch	g	0.29835	0.22082
Sugar	g	4.49829	3.32929
Dietary fibre	g	1.59013	1.17689
Vitamin A	mcg	158.79932	117.53127
B-Carotene	mcg	586.72264	434.24781

Health Promotion Board

Server 1: Welcome, Lim Meng Thiam (Logout)

Home | Food Composition | Health Supplement | Recipe Analysis | Diet Analysis | Survey | Administration

Home » Survey Data Management Module

Survey Data Management Module (SDMM)

Search (Click to expand/collapse)

Survey Name: Survey Type: --Select One--

Survey Serial No.: Survey Batch ID:

View 10 records per page

Survey Name	Serial No.	Batch ID	Survey Type	Status	Action
NNS 2010	010001	1	24-Hour Dietary Recall Questionnaires	Active	Add Response Coder Workflow [Reviewer Workflow Supervisor Workflow] Create copy Download Data Download Report

Survey Data Management Module (SDMM) : Survey Workflow

Survey Data Profile

24-Hour Dietary Recall Questionnaires

Search (Click to expand/collapse)

Respondent ID: Respondent name:

Interviewer ID: Date of interview:

View 10 records per page

Respondent ID	Coder ID	Reviewer ID	Supervisor ID	Recall Date (dd-MMMM-YYYY)	Status	Review Response Comment
BK50995	JANICEG	LIMSY	meimeil	18-APR-2010	Approved	Review Response Comment
BK50995	JANICEG	LIMSY	meimeil	16-APR-2010	Approved	Review Response Comment
BK51012	LIMSY	nurshalisa	leowsm	19-APR-2010	Approved	Review Response Comment
BK51012	LIMSY	nurshalisa	leowsm	18-APR-2010	Approved	Review Response Comment
BK51041	JOYCEL1	ANGELINEL2	chengq	13-APR-2010	Approved	Review Response Comment

24-Hour Dietary Recall Questionnaires

Recall Date: 24-APR-2010

Time:

Food/Recipe/Supplement Name: Search:

Item description:

Quantity: per serving

Weight: Venue: Home

Healthier Choice Symbol Brand (Please Specify:)

Remarks:

View 10 records per page

Time	Food / Recipe / Supplement Name	Item description	Quantity	Per Serving	Weight	Final Weight	Venue	HCS	Brand	Recommended By	Remarks
1100	Water, plain		300 Gram	1	300	300	Home	0	-	-	[Edit]
1130	Dry wanton noodles	Minced pork dumpling, boiled, with noodles, sliced char	1 Plate-23cm	330	330	330	Prepared by Food Outlet	0	-	-	0027 [Edit]

Health Tools

- Asthma Control Calendar**: Use this Calendar to control your asthma. Take charge of your asthma and manage it to lead a fulfilling life.
- Asthma Control Test**: This test will provide a score that may help your doctor determine if your asthma treatment plan is working or not.
- BMI Calculator**: Are you in the healthy range? Check your Body Mass Index (BMI) using this tool.
- Calorie Calculator**: Find out how many calories you need per day to maintain your weight.
- Change of Appointment**: Need to change your child's appointment?
- Diabetes Risk Assessment**: Diabetes is a serious disease that can lead to heart and kidney disease.

Energy and Nutrient Composition of Foods

Our current database of over 1,000 food items includes local dishes such as 'char kway teow', 'nasi lemak' and 'roti prata'. It also includes desserts such as 'chendol', 'ice kacang' and 'almond jelly'.

Select a food item and find out its nutrient value by following the step-by-step process below.

Step 1: Select food category.
 --Select--

OR



General Search. You may key in the food item to do a general search from all the foods in this database. Maximum 2 keywords.

Matches EXACT Words
 Matches ANY Words or Close Matches

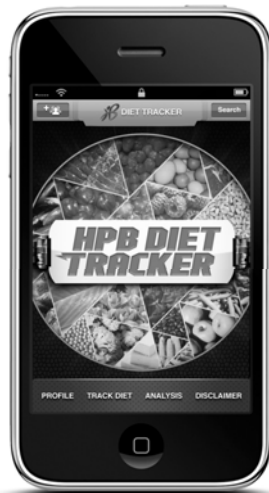
Energy and Nutrient Composition of Foods

You have selected the following food item(s):

- Noodles, fish ball, dry
 (Click on food name to view picture)
 Alternate Name : N/A
 Description : Yellow noodles with fish ball and chye sim, served with chili sauce
 Edible Portion : 100%
 Per Serving : 327 g

The analysis (per serving) follows:

	Noodles, fish ball, dry	
Energy (kcal)		370
Protein (g)		19
Total fat (g)		8
Saturated fat (g)		3.3
Dietary fibre (g)		3.9
Carbohydrate (g)		55
Cholesterol (mg)		43
Sodium (mg)		1,645





- Issues/challenges

- Lab analysis methods: keeping up-to-date
- Derivation of nutrient values:

Reference databases may adopt different ways of expressing nutrient data (e.g. CHO by difference vs. sum of starch and sugars)