

# Training programme

Institute of Nutrition, Mahidol University

## Training: Food Composition Analysis and Food composition Database Development

**Participants:** Five participants from National Nutrition Center (NNC), Department of Health, Ministry of Health, Myanmar

**Study types:** lectures, practices/workshop/study visit, on-site laboratory training at Food Chemistry/Food Microbiology laboratory, discussion, presentation

*Please note that the proposed programme is subject to modification as required.*

**Course coordinators:** Prapasri Puwastien and Kunchit Judprasong

**Lecturers and trainers:** Prapasri Puwastien, Kunchit Judprasong, Pongtorn Sungpuag, ... Warangkana Srichamnong, Aikkarach Ketawan, Orapin Banjong, Treerat Saiwan, and staffs of Food Chemistry and Food Microbiology laboratories

**Duration:** 14 to 25 October 2013

### Monday: 14 October 2013

Time	Activities	Responsible staff
08.30-09.30 (1 h) Session 1	<ul style="list-style-type: none"><li>Welcome</li><li>Orientation of INMU (video) and Salaya Campus – library and canteen</li></ul>	<ul style="list-style-type: none"><li>Dr. Visith Chavasit/ Course Co-ordinator, lecturers</li><li>Kunchit Judprasong</li><li>Wipa Kunnasut</li></ul>
09.30-10.30 (1 h) Session 2	<ul style="list-style-type: none"><li>Introduction to the course schedule</li><li>Technical orientation: visit Food Chemistry Lab, Food Microbiology Lab, Instrument rooms, all facilities related to laboratories, Library – INMU, lecture rooms</li></ul>	<ul style="list-style-type: none"><li>Prapasri Puwastien</li><li>Kunchit Judprasong</li></ul>
10.30-10.45 (15 min)	Morning break	
10.45-12.00 (1 h 15 min) Session 3	<ul style="list-style-type: none"><li>Introduction to food composition data system, international, regional and national networks</li><li>INFOODS and ASEANFOODS Websites</li></ul> <p><b>Development of food composition database – Nutrients analysis (FCD generation)</b></p> <ul style="list-style-type: none"><li>Setting priorities and selection of foods and nutrients,</li><li>Food groups and selected nutrients in national and regional FCTs/FCDs</li></ul>	<ul style="list-style-type: none"><li>Prapasri Puwastien</li></ul>
12.00-13.00 (1 h)	Lunch	All lecturers*
13.00-14.30 (1 h 30 min) Session 4	<p><b>Development of FCD – continued</b></p> <ul style="list-style-type: none"><li>Sampling plan and sampling</li><li>Sample collection</li><li>information record</li><li>photography</li></ul>	<ul style="list-style-type: none"><li>Prapasri Puwastien</li><li>Kunchit Judprasong</li><li>Treerat Saiwan</li></ul>
14.30-14.45 (15 min)	Afternoon break	
14.45-16.15 (1 h 30 min) Section 4: continued	<p><b>Analysis of nutrients 1:</b> Sample preparation and storage: solid, liquid, fresh, mixed foods, lyophilised foods</p>	Pongtorn Sungpuag
16.15-16.30 (15 min)	Q and A, discussion	Prapasri, Kunchit, Pongtorn

## Tuesday: 15 October 2013

Time	Activities	Responsible staff
08.30-09.00 (30 min)	Summary of information from Day 1	<ul style="list-style-type: none"> <li>Prapasri Puwastien</li> <li>Kunchit Judprasong</li> </ul>
09.00-12.00 h (3 h) Session 1 and 2, with 15 min Morning Break	<b>Analysis of nutrients 2: Module 1:</b> Determination of proximate composition and DF <ul style="list-style-type: none"> <li>Brief the flow chart, provide a short method</li> <li>Lab: demonstration</li> <li>Participants record materials, glassware, methods, and instruments</li> </ul>	
	<b>Participant 1:</b> moisture, fat	Prapasri Puwastien/ Boonlert
	<b>Participant 2:</b> protein and ash	Pongtorn Sungpuag/ Bangon/ Ramphuang
	<b>Participant 3:</b> dietary fibre	Kunchit Judprasong/ Amornrat
	<b>Participant 4 and 5:</b> minerals by AAs	Aikkarach Kettawan/Aurawan
12.00-13.00	Lunch	
13.00-16.00 (3 h) Session 3 and 4, with 15 min afternoon break	<b>Analysis of the selected nutrients: Module 1:</b> – continued	Same as above
16.00-16.30	Introduction to ICP	Kunchit Judprasong

## Wednesday: 16 October 2013

Time	Activities	Responsible staff
08.30-09.00 (1 h)	Discussion on method of analysis in <b>Model 1</b>	Prapasri Puwastien, Kunchit Judprasong
09.00-12.00 (3 h) Session 1 and 2 with 15 min morning break	<b>Analysis of nutrients 2: Module 2:</b> Determination of saturated fat, Cholesterol, sugars, and minerals by ICP – Group training <ul style="list-style-type: none"> <li>Brief the flow chart, provide a short method</li> <li>Lab: demonstration</li> <li>Participants record materials, glassware, methods, and instruments.</li> </ul>	
	Saturated fat, cholesterol	<u>Warankana srichamnong/ Kraingkrai</u>
	Sugars	Pongtorn Sungpuag/ Yupaporn
	Minerals by ICP	Kunchit Judprasong/Aurawan
12.00-13.00	Lunch	
13.00-16.00 (3 h) 16.00-16.30 (30 min) Session 3 and 4 with 15 min afternoon break	<b>Analysis of nutrients 2: Module 2</b> – continued Brief method for water soluble vitamin analysis by microbiological assay	Same as above Prapasri Puwastien

**Thursday: 17 October 2013**

Time	Activities	Responsible staff
08.30-09.30 (30 min)	Heavy rain, no lecture	Prapasri Puwastien, Kunchit Judprasong
09.30-16.30 Session 1 and 2 with 15 min morning break	<b>Analysis of nutrients 2: Module 3:</b> Determination of fat- soluble vitamins and water soluble vitamins: group training	
	Fat soluble vitamins: vitamin A and E (2 h)	• Pongtorn Sungpuag/ Yupaporn
	Water soluble vitamins by HPLC: vitamin B <sub>1</sub> and B <sub>2</sub> ) (3 h)	• Naruemol Pinrapai/ Kunchit Judprasong
	Water soluble vitamins by microbiological assay Niacin (4 h)	• Prapasri Puwastien/Pawinee

**Friday 18 October 2013**

Time	Activities	Responsible staff
09.00-09.30 (30 min) Session 1	Discussion: the experience on method of analysis in <b>Model 1-3</b>	Prapasri Puwastien, Pongtorn Sungpuag, Kunchit Judprasong
09.30 to 10.30	Morning break	
10.15-11.30 (1 h 15 min) Session 2	Proximate composition analysis and critical control steps	Pongtorn Sungpuag,
	Microbiological assay	Prapasri
11.30-13.00	Lunch	
13.00-14.00 (1 h) Session 3	Mineral analysis and critical control steps	Kunchit Judprasong
14.00-15.30 (1 h 30 min)	Vitamin analysis (fat soluble and water soluble vitamins) and critical control steps	Pongtorn Sungpuag,
15.30-15.45	Afternoon break	
15.45-16.45 (1 h)	Sugars, cholesterol, saturated fat analyses and critical control steps	Pongtorn Sungpuag Kunchit Judprasong

**Monday: 21 October 2013**

Time	Activities	Responsible staff
08.30-09.00 (30 min)	Summary of activities and information from the first week training	Prapasri Puwastien Kunchit Judprasong
09.00-10.30 (1 h 30 min) Session 1,	<b>Internal and external quality control (QC) systems in food analysis laboratory</b> 1. Internal quality control system: repeatability, reproducibility, in-house quality control (QC) sample, quality control chart and its use to demonstrate good performance in precision 2. External quality control system: proficiency testing scheme (as a participating laboratory)	Kunchit Judprasong
10.30-10.45	Morning break	
10.45-12.00 (1 h 15 min) Session 2	<b>Preparation of a control chart of nutrient analysis:</b> protein/calcium/cholesterol/ vitamin B1	<ul style="list-style-type: none"> <li>• Kunchit Judprasong</li> <li>• Naruemon Pinprapai</li> </ul>
12.00-13.00	Lunch	
13.00-14.30 (1 h, 30 min) Session 3	<b>Preparation of in-house QC sample: demonstration and practice</b> - using a dry product: soybean or milk powder	<ul style="list-style-type: none"> <li>• Kunchit Judprasong</li> <li>• Naruemon Pinprapai</li> <li>• Prapasri Puwastien</li> </ul>
14.30-15.00	Afternoon break	
15.00-16.00 (1 h) Session 4	<b>Checking quality of QC sample and statistics used:</b> <ul style="list-style-type: none"> <li>• Checking homogeneity of sample</li> <li>• Checking stability of nutrients</li> </ul>	<ul style="list-style-type: none"> <li>• Kunchit Judprasong</li> </ul>
16.00-16.30 (30 min)	Completion of the work and Discussion	<ul style="list-style-type: none"> <li>• Kunchit/ Prapasri</li> </ul>

**Tuesday: 22 October 2013**

Time	Activities	Responsible staff
08.30-10.15 (1 h 45 min) Session 1	<ul style="list-style-type: none"> <li>• Thai and ASEAN Food Composition Tables (FCTs)</li> <li>• FAO/INFOODS Guidelines: 1. food identification <ul style="list-style-type: none"> <li>- food names and description of foods</li> <li>- food group and food codes</li> </ul> </li> </ul>	Prapasri Puwastien
10.15-10.30 (15 min)	Morning break	
10.30-12.00 (1 h 30 min) Session 2	<ul style="list-style-type: none"> <li>• FAO/INFOODS Guidelines: 2. components nomenclature, conventions and expression</li> <li>• INFOODS Tagnames (component identifier),</li> <li>• units and denominators (per 100 g or 100 mL edible portion)</li> <li>• significant figures and number of decimal places</li> <li>• rounding procedure</li> <li>• conversion factors</li> </ul>	Prapasri Puwastien, Treerat Saiwan
12.00-13.00	Lunch	

**Tuesday: 22 October 2013** (continued)

Time	Activities	Responsible staff
13.00-14.30 (1 h 30 min) Session 3	<b>Development of national food composition database-1</b> <ul style="list-style-type: none"> <li>Sources of data: analysed, calculated, borrowed</li> <li>References resources, INFOODS website, InFoods-Food-Comp- @LISTSERV.FAO.ORG</li> <li>Data compilation: preparation of archival and reference food composition database</li> </ul>	Prapasri Puwastien, Treerat Saiwan
14.30-14.45	Afternoon break	
14.45-16.15 (1 h 30 min) Session 4	<b>Introduction: INMUCAL</b> Demonstration: recipes calculation INMU - MenuDevelop (iMD)	Orapin Banjong
16.15-16.30 (15 min)	<b>Discussion</b>	

**Wednesday: 23 October 2013**

Time	Activities	Responsible staff
08.30-08.45 (30 min)	Summary of information/activities	Prapasri Puwastien;
08.45-10.15 (1 h 30 min) Session 1	<b>Development of national food composition database-2: <i>lecture, demonstration and practice</i></b> <ul style="list-style-type: none"> <li><b>Preparation of user data file:</b> <ul style="list-style-type: none"> <li>Evaluation of aggregated FCD to prepare user database</li> <li>INFOODS and THAIFOODS food composition database format</li> <li>Preparation of user database</li> </ul> </li> </ul>	Prapasri Puwastien; Treerat Saiwan
10.15-10.30 (15 min)	Morning break	
10.30-12.00 (1 h 30 min) Session 2	<ul style="list-style-type: none"> <li><b>Preparation of user data file: (continued)</b></li> <li>Checking FCD prior to publication:               <ul style="list-style-type: none"> <li>Name and expression</li> <li>Calculation, conversion factors</li> <li>Tagnames</li> <li>Check on components, follow</li> <li>FAO/INFOODS Guidelines</li> </ul> </li> </ul>	Prapasri Puwastien; Treerat Saiwan
12.00-13.00	Lunch	
13.00-14.30 (1 h 30 min) Session 3	<ul style="list-style-type: none"> <li>Evaluation of data quality</li> </ul>	Treerat Saiwan, Prapasri Puwastien
14.30-14.45	<ul style="list-style-type: none"> <li>Afternoon break</li> </ul>	
14.45-16.30 (1 h 45 min) Session 4	<ul style="list-style-type: none"> <li><b>Publication of FCD:</b> Components of published food composition database and detailed information</li> </ul>	Prapasri Puwastien;
16.30-17.00 (30 min)	<b>Discussion</b>	

**Thursday: 24 October 2013**

<b>Time</b>	<b>Activities</b>	<b>Responsible staff</b>
09.00-16.00 (6 h) (start from INMU at 07.30 h)	Study visit at Ministry of Public Health Discussion	Nunthaya Jongjaithet and team Prapasri, Kunchit, Treerat

**Friday: 25 October 2013**

<b>Time</b>	<b>Activities</b>	<b>Responsible staff</b>
<b>09.00-10.30</b> (1 h 30 min)	Application of ISO/IEC 17025 to practices: development of FCD	Pongtorn Sungpuag
10.30-10.45 (15 min)	Morning Break	
10.45-12.15 ( 1 h 30 min)	Discussion, evaluation and recommendation <b>Wrap-up and Certificate presenting</b> <b>Closing</b>	Dr. Visith Chavasit, Dr. Chaniphun Butryee All lecturers and related INMU staff
12.15-13.15	<b>Lunch</b>	All lecturers and assistants*