EUROPEAN COMMISSION E+ Capacity Building in Higher Education

SEA-ABT: SOUTH EAST ASIA ACADEMY FOR BEVERAGE TECHNOLOGY

Project number: 561515-EPP-1-2015-1-AT-EPPKA2-CBHE-JP

October 2015-September 2018

Deliverable D3.1

Report on developed CPD products

Prepared by: **Sasitorn Tongchitpakdee (Kasetsart University)**

Contributors: **All partners**

Delivery date: **M40**

Dissemination Level		
PU	Public	**X**
PP	Restricted to other programme participants (including Commission services and projects reviewers)	
CO	Confidential, only for members of the consortium (including EACEA and Commission services and projects reviewers)	

Summary:

In this deliverable D3.1 *Report on developed CPD products* each developed CPD module is described with regard to learning outcomes, content, teaching and learning methods, language, available teaching materials, assessment method and evaluation, qualification and skill requirements for teachers, previous knowledge expected and workload for students. All this data will be made available in a web database maintained by the Academy at https://www.sea-abt.eu/training-modules-for-continuing-professional-development

Co-funded by the Erasmus+ Programme of the European Union

Contents

Project Coordinator:
GERHARD SCHLEINING | BOKU – Universitaet fuer Bodenkultur Wien |
gerhard.schleining@boku.ac.at

Overview CPD Modules

Since the beginning of the project, all CPD modules listed in D1.4 have been designed and implemented in various formats such as workshops, webinars, e-learning courses and flash presentations /demonstrations. A complete overview can be found at https://www.sea-abt.eu/training-modules-for-continuing-professional-development

This deliverable contains a list of all developed and implemented training activities specified with regard to learning outcomes, content, teaching and learning methods, language, available teaching materials, assessment method and evaluation, qualification and skill requirements for teachers, previous knowledge expected and workload for students.

Participant evaluations, programmes and announcements of each of the developed and implemented CPD products can be found in *D3.3 – Report on improved CPD products*.

Co-funded by the
Erasmus+ Programme
of the European Union

	Format					Target groups			Date	Language	Institution	Name
Subject	Flash presentation	webinar	demonstration	e-learning course	workhsop	teachers	students	Food professionals				
Shelf-life of beverages					x		x	x	31 October 2017	EN	UNITE	Paola Pittia
Sugars in foods		x				x	x	x	22 August 2018	EN	UNITE	Paola Pittia
Sugars and sweeteners in beverages					x	x	x	x	12 September 2018	EN	UNITE	Paola Pittia
Hygienic design					x	x	x	x	19-21 July 2017	EN/TH	KMITL	Gerhard Schleining/Navaphattra Nunak
Hygienic design					x	x	x	x	18-20 July 2018	EN/TH	KMITL	Gerhard Schleining/Navaphattra Nunak
Hygienic design				x					January 2018 (part of test run)	EN/TH	BOKU/KMITL	Gerhard Schleining/Navaphattra Nunak
Hygienic design		x				x	x	x	8 March 2018	EN/TH	BOKU/KMITL	Gerhard Schleining/Navaphattra Nunak
Lean business plan development					x	x	x	x	6-7 September 2018	EN	BOKU	Rainer Svacinka

Co-funded by the Erasmus+ Programme of the European Union

Selected topics of food safety for less educated food professionals	x		x					x	July 2018	EN	BOKU	Gerhard Schleining
Food law and regulations for beverages					x	x	x	x	29-30 March 2018	EN/TH	KU	Kriskamol Na Jom
New Product Development					x	x	x	x	27-28 February 2019	EN7TH	KU	Kriskamol Na Jom
Innovative Technology					x	x	x	x	27-28 February 2018	EN/TH	KU	Sasitorn Tongchitpakdee
Project Management					x	x	x	x	6-7 September 2018	EN	BOKU	Rainer Svacinka
Fruits and vegetables drink					x	x	x	x	24-25 April 2018	EN	HGU	Frank Will
Food safety management for SMEs					x	x	x	x	22 December 2017	EN/TH	KU	Warapa Mahakanjanakul

1 Shelf-life of Beverages

Topic title	**Shelf-life of beverages**
Topic category	QA&QC
format	Workshop (face to face)
Number of participants	38 participants
Workload in h	6 (contact hours)
Target groups	Food practitioners and operators, professionals, lecturers, teachers, students
Language of delivery	EN
Responsible person	Paola Pittia | ppittia@unite.it
Additional trainers	A series of guest speakers will be invited to contribute with oral contribution and practicals on the several aspects of beverages shelf-life
Date and time of delivery	31. October 2017, Sukosol Hotel, Bangkok, Thailand The programme can be found at https://www.sea-abt.eu/SHELF-LIFE-OF-BEVERAGES
Pre knowledge expected	Food technology, Food quality
Learning outcomes	After successful completion of the activity, the participants: 1. Will be able to define with objective indices the shelf-life of beverages 2. Will determine the main factors (processing, environmental, product, packaging) that could contribute to prolong shelf-life of beverages 3. Will be able to highlight the critical factors that decrease quality of beverages during storage and distribution and to optimize processing and storage conditions to maintain the quality of beverages
Content	Tentative - Shelf-life life concepts and models for prediction and estimation - Intrinsic and extrinsic factors of beverages affecting quality of processed products during storage - Role of packaging on beverage stability - Conventional and innovative actions to improve microbial stability of beverages - Modern analytical tools to trace quality and stability of beverages
Teaching method	Lectures and groupworks
Recommended reading	GSICA website (packaging and shelf-life) http://www.gsica.net/en/?lan=en Others to be included
Criteria & registration	No limitation to number of participants Fee according to expenses and expected number of participants
Assessment of achievements	Multiple choice test

Co-funded by the Erasmus+ Programme of the European Union

2 Not only Sweeteners: Technological Functionality of Sugars in Foods and Beverages

Topic title	**Not only sweeteners: technological functionality of sugars in foods and beverages** (title changed from D1.4)
Topic category	Beverage processing
format	Webinar
Workload in h	4
Target groups	Students, technical personnel, teachers, researchers
Language of delivery	English
Responsible person	Paola Pittia, University of Teramo, Italy
Additional trainers	-
Date and time of delivery	22 August 2018 Recording can be found at https://www.sea-abt.eu/node/298
Pre-knowledge expected	Food processing Food chemistry
Learning outcomes	After successful completion of the activity, the participants: 1. Will have an improved knowledge about the technological functionality of small saccharides (sugars) 2. Will determine the main factors, food properties and stability affected by presence and concentration of sugars in foods 3. Will have improved knowledge in food and beverage design and formulation
Content	Sugars are sweet, water soluble, low molecular weigth carbohydrates largely present in foods by either nature or addition. They comprise a class of compounds with different chemical, physico-chemical and physical properties that have been recognised important for their role and functionality in food applications. In addition to the peculiar taste properties mainly associated to the sweeteness, sugars are multifunctional compounds. Hygroscopicity, humectancy, osmotic and textural effects along with the reactivity and physical stability of the low molecular weight saccharides are affecting significantly the quality of food products upon processes and storage conditions. Their ability to inhibit degradative microbial and biochemical reactions is the basis of the ancient use of sugars and sugar-based ingredients (honey, plant syrups) for preservation purposes in intermediate moisture foods. Moreover, sugars could also indirectly affect also the perception of other sensory properties of food products like bitterness and aroma. From a nutritional point of view sugars are mostly contributing to the energetic value of foods. In the last decades their presence and concentration in formulated and processed products (e.g. soft drinks, confectionery) have been under a main debate due to their direct role on various diet-related metabolic diseases like diabetes, obesity, lactose intolerance and dental caries. The reduction of the content of sugar (in particular sucrose), and/or the use of alternatives sweeteness able to mimic the sensory properties of sugars is generally applied to meet the modern nutritional guidelines. However, these strategies do not consider the other technological functionalities that these saccharides exert in foods and thus the optimization of formulation and processing conditions is required in order to achieve high

	quality, low sugar and low calories foods. Aim of this webinar is to give an overview of the technological functionalities of sugars in foods underlying the related scientific basis and to provide some knowledge and information useful for the desig and, development of formulated, high quality and stable food products.
Teaching method	Distance
Recommended reading	
Criteria & registration	Web-based (via ISEKI-Food Association webinar platform)
Assessment of achievements	QA
Further information	The recording of the webinar can be found at https://www.sea-abt.eu/node/298

The webinar on "Not only sweeteners: technological functionality of sugars in foods and beverages " was complemented with a workshop on "Sugars and sweeteners in beverages: trends and challenges" held 12 September 2018, Windsor Hotel, Bangkok, Thailand, as part of the IFIFS2018 Conference International Conference on Innovations in Food Ingredients and Food Safety:

Topic title	**Sugars and sweeteners in beverages: trends and challenges**
Topic category	Beverage processing
Format	Workshop
Workload in h	3h
Target groups	Students, teachers
Language of delivery	English
Responsible person	Paola Pittia (ppittia@unite.it)
Additional trainers	-
Date and time of delivery	Part of the conference IFIFS2018 – International Conference on Innovations in Food Ingredients and Food Safety https://www.sea-abt.eu/node/206 or https://ififs2018.meetinghand.com/en/ 13 September 2018, Hotel Windsor, Bangkok, Thailand
Pre knowledge expected	
Learning outcomes	After successful completion of the activity, the participants: 1. Sugar Tax Insight 2. Technological role of sugars and saccharides in beverages 3. Modern analytical tools for evaluation sugars and sweeteners 4. sweetener applications for beverages
Content	**Workshop Sugars and Sweeteners in Beverages: Trends and Challenges** 14:00-14:15 Opening and Introduction by **Paola Pittia** (University of Teramo, Italy) & **Sasitorn Tongchitpakdee** (Kasetsart University, Thailand) 14:15-14:45 Sugar Tax Insight, **Natthakorn Utensute**, Director of Tax planning Bureau, Thailand 14:45-15:15 Technological role of sugars and saccharides in beverages, **Paola Pittia**, University of Teramo, Italy ***15:15-15:45 Coffee break*** 15:45-16:15 Modern analytical tools for evaluation sugars and sweeteners, **Dario Compagnone**, University of Teramo, Italy 16:15-16:45 Update on sweetener applications for beverages, **Virat Chatnithikul**, Managing Director, Scent Cottage Co.,Ltd., **Kanda Wanichkanjanakul**, Southeast Asia Sales Manager, Mafco Worldwide ***17:00-19:00 Welcome Cocktail in Hotel Windsor***
Teaching method	Workshop
Recommended reading	

Criteria & registration	Conference registration via https://ififs2018.meetinghand.com/en/
Assessment of achievements	
Further information	https://ififs2018.meetinghand.com/en/

3 Regulations and Standards for Beverages

Topic title	**Regulations and Standards for Beverages** In D1.4 entitled *Food Law & Regulations for beverages*
Topic category	QA&QC
Format	Workshop (face to face)
Workload in h	6 (contact hours) 2 evening or Saturday
Target groups	Food professionals, startup managers, students
Language of delivery	TH/EN
Responsible person	Kriskamol Najom| fagikmn@ku.ac.th
Additional trainers	Guest speakers (e.g. from Thai Ministry, international lawyer)
Date and time of delivery	29-30 March 2018 Room 2204, Agro-Industry 2, Faculty of Agro-Industry Kasetsart Universy, Bangkok, Thailand See programme at https://www.sea-abt.eu/node/177
Number of participants	40 Participants
Pre-knowledge expected	none
Learning outcomes	After successful completion of the activity, the participants: • Will know relevant national and international regulations • Able to follow the regulations for certain cases
Content	• Most important Thai international regulations relevant for beverages • Most important international regulations relevant for beverages • Product Registration process
Teaching method	Lectures and groupworks
Recommended reading	Thai FDA website (www.fda.moph.go.th)
Criteria & registration	No limitation to number of participants Fee according to expenses and expected number of participants The workshop will take place at KU facilities
Assessment of achievements	Written test or oral presentation of assignment (group work).

4 Hygienic Design

Topic title	**Hygienic Design**
Topic category	Engineering
Format	The CPD module "Hygienic Design" was held twice during the project duration as workshops and as webinar: • Training-Workshop on EHEDG Advanced Course on Hygienic Engineering held 19-21 July 2017 , at KMITL, Bangkok, Thailand ○ Programme available at https://www.sea-abt.eu/node/104 • EHEDG Advanced Course on Hygienic Engineering 18-20 July 2018 at KMITL, Bangkok, Thailand ○ Programme available at https://www.sea-abt.eu/node/219 • Webinar "Case study on hygienic value" held 8 March 2018 online. ○ Recording available at https://www.sea-abt.eu/Hygienicdesign
Workload in h	Workshops: 8 contact hours in 3 days
Target groups	Food professionals, Engineers
Language of delivery	TH/EN
Responsible person	Navaphattra Nunak, navaphattra.nu@kmitl.ac.th
Additional trainers	Guest speakers (e.g. from EHEDG)
Date and time of delivery	3 days/year
Pre-knowledge expected	Should have relevant practical experience in food production line.
Learning outcomes	After successful completion of the activity, the participants: 1. Will know relevant national and international legislation and standards 2. Will know insight into the hygienic design of equipment and processes for the food, feed and pharmaceutical industry, to better fulfil the wishes of purchasers and retailers.
Content	1. Legislation and standards requirements 2. Hazards in hygienic processing 3. Hygienic design criteria 4. Materials of construction 5. Welding stainless steel 6. Vales, Pumps 7. Cleaning and disinfection 8. Building and process lay out 9. Installation, maintenance and Lubricants
Teaching method	Lectures and groupworks
Recommended reading	EHEDG website (http://www.ehedg.org) European Network for Hygienic Manufacturing of Food (www.hyfoma.com) US FDA website (http://www.fda.gov/) EU Legistration website(http://eur-lex.europa.eu/homepage.html) (Machinery directive 2006/42/EC, Materials and articles intended to come into contact with food EC 1935/2004)
Criteria & registration	Maximum 25 participants Registration The workshop will take place at KMITL facilities
Assessment of achievements	Written test and oral presentation of assignment (group work).

5 New Product Development for Brewing Technology

Topic title	**New Product Development for Brewing Technology** In D1.4 this workshop was entitled “New Product Development”
Topic category	QA&QC
format	Workshop (face to face)
Workload in h	6 (contact hours) 2 evening or Saturday
target groups	Food professionals, startup managers, students
Language of delivery	TH/EN
responsible person	Kriskamol Najom| fagikmn@ku.ac.th
additional trainers	Guest speakers (e.g. from Thai Ministry, international lawyer)
date and time of delivery	27-28 February 2019, Kasetsart University, Bangkok, Thailand https://www.sea-abt.eu/node/343
pre knowledge expected	none
learning outcomes	After successful completion of the activity, the participants: • Will know relevant national and international regulations • Able to follow the regulations for certain cases
content	• Most important Thai international regulations relevant for beverages • Most important international regulations relevant for beverages • Product Registration process
Teaching method	Lectures and groupworks
recommended reading	Thai FDA website (www.fda.moph.go.th)
criteria & registration	No limitation to number of participants Fee according to expenses and expected number of participants The workshop will take place at KU facilities Programme: https://www.sea-abt.eu/node/343
Assessment of achievements	Written test or oral presentation of assignment (group work).

6 Innovative Processing Technologies for the Beverage Industry

Topic title	**Innovative Processing Technologies for the Beverage Industry** In D1.4 entitled *Innovative Technology for beverage industry*
Topic category	Technology and engineering
Format	Workshop (face to face)
Workload in h	6 (contact hours) 2 Days workshop
Target groups	Food professionals, startup managers, students
Language of delivery	TH/EN
Responsible person	Sasitorn Tonchitpakdee, Kasetsart University
Additional trainers	Pitiya Kamonpatana Guest speakers (e.g. from company, universities, government agency)
Date and time of delivery	27-28 February, 2018 Room 2204, Agro-Industry building 2 Faculty of Agro-Industry, Kasetsart University, Bangkok, Thailand Programme available at https://www.sea-abt.eu/node/162
Number of participants	72 participants
Pre knowledge expected	none
Learning outcomes	Upon successful completion of this course participants should be able to: – Describe the principles of innovative technologies for beverage industry such as irradiation , microwave, radio frequency, infrared and ohmic heating, pulsed electric field, ultrasound, superheated steam, and high hydrostatic pressure. – Discuss advantages and disadvantages of each technology
Content	Principle of innovative technologies for beverage industry including both thermal and non-thermal technologies such as irradiation, microwave, radio frequency, infrared and ohmic heating, pulsed electric field, ultrasound, superheated steam, and high hydrostatic pressure.
Teaching method	Lectures and groupworks
Recommended reading	-Sun, DW 2005, Emerging Technologies for Food Processing, Academic Press, Texas.
Criteria & registration	No limitation to number of participants Fee according to expenses and expected number of participants The workshop will take place at KU facilities
Assessment of achievements	Written test or oral presentation of assignment (group work).

7 Research Project Management

Topic title	**Research Project Management**
Topic category	Soft skills
Format	workshop
Workload	8 contact hours in 2 days
Target groups	Food professionasl, students
Language of delivery	EN
Responsible person	Rainer Svacinka (rainer.svacinka@boku.ac.at)
Additional trainers	One Thai trainer required
Date and time of delivery	6-7 September 2018, Chulalongkorn University, Bangkok, Thailand Programme: https://www.sea-abt.eu/node/302
Pre-knowledge expected	None
Learning outcomes	1. Get an overview on available project management methodologies and standards and its relevance for research projects. 2. Understand what project management means and covers. 3. Participants learn how to define and structure objectives and non-objectives. 4. Learn how to word deliverables and effective milestones. 5. Learn how to build up a project consortium in the project preparation phase (proposal phase). 6. Learn about the important tasks, activities and outputs of a kick-off meeting 7. Learn how to break down the project work in work packages and efficiently manage those WPs. 8. Some basic rules to plan a realistic project budget and ways to control and manage project finances 9. Learn about common project management structures and procedures 10. Get an overview on available management tools and how to apply them in a project 11. Know about the main steps of project reporting and controlling 12. Learn about ways to plan for good quality and perform quality assurance. 13. Learn to manage the project close down process and the close down meeting to successfully close a project
Content	• Basics of project management methodologies • Description of Work, objectives, deliverables and milestones • Consortium building • Management of the project start, work packages and project

	results • Financial planning, management and control • Project management structure, procedures and tools • Reporting • Quality assurance • Management of the Project close down
Teaching method	Lectures and groupworks
Recommended reading	none
Criteria and registration	Maximum 20 participants Fee according to expenses and expected number of participants and location
Assessment of achievements	Written test

8 Fruit Juice and Fruit-based Beverages

Topic title	**Fruit juice and fruit-based beverages** In D1.4 entitled "Fruit and vegetable juices"
Topic category	Beverage technology
Format	workshop
Workload	8 contact hours in 2 days
Target groups	Food professionals, students
Language of delivery	EN
Responsible person	Frank Will
Additional trainers	One Thai trainer required
Date and time of delivery	24-25 April 2018 Room 5419, Agro-Industry 5. Faculty of Agro-Industry, Kasetsart University, Bangkok, Thailand Programme available at https://www.sea-abt.eu/node/199
Number of participants	46 participants
Pre-knowledge expected	Basic food tech.
Learning outcomes	Fruit and vegetable processing operations, production of semi-finished products
content	Post harvest storage, washing, sorting, process technology for juices and purees, juice extraction, clear/cloudy juices, enzyme technology, mash treatment, clarification and stabilization, degassing, pasteurization, sterilization, evaporation, aroma recovery, storage of the different products
Teaching method	lectures
Recommended reading	
Criteria and registration	Maximum 20 participants Fee according to expenses and expected number of participants and location
Assessment of achievements	Written test

9 Food Safety Management: Practical Practices for the Beverage Industry

Topic title	**Food Safety Management: Practical Practices for the Beverage Industry** In D1.4 entitled *Food Safety Management for SMEs*
Topic category	QA&QC
Format	Workshop (face to face)
Workload in h	6 (contact hours) 2 evening or Saturday
Target groups	Food professionals, startup managers, students
Language of delivery	TH/EN
Responsible person	Warapa| fagiwpm@ku.ac.th
Additional trainers	Guest speakers (e.g. from The National Food Institute)
Date and time of delivery	22 December 2017 Department of Food Science and Technology, Faculty of Agro-Industry, Kasetsart University, Bangkok, Thailand Programme available at https://www.sea-abt.eu/th/node/142
Number of participants	58 participants
Pre-knowledge expected	none
Learning outcomes	After successful completion of the activity, the participants: 1. Identify and critically evaluate food safety hazards and determine their significance as risks to public health in food operations and products 2. Analyse the relationship between prerequisite programmes, GMP and HACCP systems. 3. Apply GMP and HACCP methodology to a food operation in order to develop a HACCP plan. 4. Critically evaluate alternative approaches to HACCP implementation in food operations. 5. Perform HACCP and food safety management system verification, including design, planning and execution of appropriate verification programmes. 6. Apply some of the tools and techniques for managing projects and change in the context of the design and implementation of a HACCP project. 7. Synthesise and apply relevant food safety and/or food standards legislation to different industry sectors and international settings.

Content	Relevant and up-to-date experience in foodborne disease, GMP, HACCP Development, HACCP Audit and Management, Current Issues in Food Safety Management
Teaching method	Lectures and groupworks
Recommended reading	1. Hazard Analysis and Critical Control Point (HACCP) system and guidelines for its application [Annex to CAC/RCP 1-1969, Rev 3 (1997)] 2. Notermans, S., et al. The HACCP Concept: Identification of Potentially Hazardous Microorganisms. Food Microbiol. 11:203-214, 1994. 3. Pierson, M.D. and Corlett, D.A., Jr. Editors. HACCP Principles and Applications. 4. Stevenson, K.E. and Bernard, D.T. Editors. HACCP: A Systematic Approach to Food Safety. 3rd Edition. The Food Processors Institute, Washington, D.C., 1999. 5. Van Nostrand Reinhold, New York, 1992. 6. FAOs official training manual: http://www.fao.org/docrep/W8088E/W8088E00.htm 7. good hygiene practices: http://www.fao.org/docrep/006/y5307e/y5307e00.htm
Criteria & registration	No limitation to number of participants Fee according to expenses and expected number of participants The workshop will take place at KU facilities
Assessment of achievements	Oral presentation of assignment (group work).

10 Lean Business Plan Development

Topic title	**Lean business plan development**
Topic category	Soft skills
Format	Workshop
Workload in h	8
Target groups	Students, technical personnel, teachers, researchers
Language of delivery	English
Responsible person	Rainer Svacinka (rainer.svacinka@boku.ac.at)
Additional trainers	-
Date and time of delivery	6-7 September 2018, Chulalongkorn University, Bangkok, Thailand Programme: https://www.sea-abt.eu/node/302
Pre-knowledge expected	None
Learning outcomes	After successful completion of the activity, the participants: 1. Will know how to create a business canvas 2. Will know how to create a value proposition canvas 3. Describe and structure their business idea using above mentioned tools
Content	1. Introduction to lean business plan development approach 2. Business model canvas 3. Value proposition canvas
Teaching method	Workshop
Recommended reading	
Criteria & registration	Web-based (via ISEKI-Food Association webinar platform)
Assessment of achievements	QA

11 Selected Topics of Food Safety for Less Educated Food Professionals

Topic title	Food Safety
Topic category	Soft skills
Format	Short videos/cartoons for youtube
Workload in h	8
Target groups	Food professionals
Language of delivery	English
Responsible person	Gerhard Schleining BOKU
Additional trainers	-
Date and time of delivery	Online available at sea-abt.eu YouTube channel: Flash amination: https://www.youtube.com/watch?v=O5ATb5hUg3o&feature=youtu.be Flash animation on Food Safety Topics: https://www.youtube.com/watch?v=NrkaPkkQeKc&feature=youtu.be
Pre knowledge expected	None
Learning outcomes	After successful completion of the activity, the participants: Will have deeper knowledge on certain selected topics related to food safety.
Content	
Teaching method	video
Recommended reading	
Criteria & registration	Web-based (via ISEKI-Food Association platform, youtube) https://www.youtube.com/channel/UC-zYsCKACSKx-HfGOfy77YQ/videos
Assessment of achievements	