

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 D2.3

Report on executed trainings for teachers

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Delivery date:

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:

The main purpose of task 2.3 is to train the teachers in content and new teaching methods through the organization of three workshops and – depending on the needs – webinars:

- Workshop on beverage technology subjects at HGU, Germany (5 days)
- Workshop on hygiene, quality management and environmental issues (energy reduction, waste management) related topics in Bangkok (5 days)
- Workshop on generic competences in Bangkok (5 days)
- Workshop on not identified topics in Bangkok (5 days)

This deliverable *D2.3 – Report on executed trainings for teachers* describes the trainings for teachers that have been carried out and includes agenda, a description of the content, a list of trainers and participants, and an evaluation report.

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1 Overview executed trainings for teachers

The main purpose of task 2.3 is to train the teachers in content and new teaching methods through the organization of three workshops and – depending on the needs – webinars:

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This deliverable *D2.3 – Report on executed trainings for teachers* describes the trainings for teachers that have been carried out and includes agenda, a description of the content, a list of trainers and participants, and an evaluation report.

To date (June 2018), the following trainings have taken place:

Date	Location	Topic of training	Days
10-11 April 2017	BOKU, Vienna, Austria	Training programme with list of participants and evaluation report (Appendix 1): <ul style="list-style-type: none"> • Visit to Winery School Klosterneuburg (http://www.weinobstklosterneuburg.at) wine analysis, pilot plant for fruit and vegetable processing • Visit to winery Scheiblhofer • Training on “Microbial Safety of Beverages” (including hygienic design) 	2
12-13 April 2017	UNITE, Teramo, Italy	Training programme with list of participants and evaluation report (Appendix 1): <ul style="list-style-type: none"> • Training on “Quality and microbial safety aspects” <ul style="list-style-type: none"> ○ Food Safety issues in fruit juice processing", prof. Antonello Paparella ○ Design and development of innovative beverages , prof. Paola Pittia (seminar) ○ Visits to the Faculty of Bioscience labs (Food Technology and Microbiology) • Training on “Quality and chemical safety aspects” <ul style="list-style-type: none"> ○ "Assessment of quality and safety of beverages via innovative rapid assays" – prof. Dario Compagnone (seminar) • Demonstration activities in lab: 1) detection of polyphenols via gold nanoparticles formation 2) use of e-nose for quality control 3) detection of pesticides 	2

		<p>via liquid chromatography mass spectrometry</p> <ul style="list-style-type: none"> • Visit to MEDIBEV (beverage packaging company of the REFRESCO group, Sulmona) • Visit at Zaccagnini winemaker company (processing area) (Bolognano) 	
18-21 April 2018	HGU, Geisenheim, Germany	<p>Training programme with list of participants and evaluation report (Appendix 1):</p> <ul style="list-style-type: none"> • Training on “Apple and berry processing” • Pilot plant brewery including tasting 	4

The following trainings for teachers are planned:

Date	Location	Topic of training	Days
2 July 2018	University of Hohenheim, Germany	<p>2nd Workshop of Food Waste Recovery & Open Innovation</p> <p><u>See programme:</u> https://www.isekiconferences.com/stuttgart2018/workshops/food-waste-recovery-workshop</p> <p><u>Participants:</u></p> <p>Asst. Prof. Sasitorn Tongchitpakdee, Kasetsart University Asst.Prof. Dr. Kriskamol Na Jom, Kasetsart University Dr. Sumallika Morakul, Kasetsart University Dr. Ulaiwan Withayagiat, Kasetsart University Asst Prof Dr Chaleeda Borompichaichartkul, Chulalongkorn University Dr Sarn Settachaimongkon, Chulalongkorn University Dr. Yaowapa Lorjaroenphon, Kasetsart University Dr. Pathima Udornpijitkul, Kasetsart University Asst Prof Dr Kitipong Assatarakul, Chulalongkorn University Asst. Prof. Dr. Wannee Jirapakkul, Kasetsart University Dr. Pinthip Rumpagaporn, Kasetsart University</p>	1

Appendix 1

Final Programme

<p>Arrival Vienna, Austria Saturday 8 April 2017</p> <p>Saturday evening common dinner for all who want to join</p>

BOKU (Vienna, Austria) 10-11 April 2017	
Monday, 10 April 2017	<p>8:30 pick-up from hotel by minibus and private car</p> <p>9-12: Winery School Klosterneuburg (http://www.weinobstklosterneuburg.at): wine analysis, pilot plant for fruit and vegetable processing</p> <p>12-13 lunch</p> <p>13-14 travel to Burgenland by minibus</p> <p>14-17: Winery Scheiblhofer (https://www.scheiblhofer.at/en/startseite.html)</p>
Tuesday, 11 April 2017	09-15: Microbial safety of Beverage (including Hygienic design)
BOKU, Muthgasse 18, 1190 Wien	13-15: Small project meeting
	15-16: Transport to airport 18:25-20:00 flight to Rome Bus to Teramo
List of participants:	<p>Asst. Prof. Dr. Chaleeda Borompichaichartkul, CU</p> <p>Dr. Sarn Settachaimongkon, CU</p> <p>Asst. Prof. Dr. Sasitorn Tongchitpakdee, KU</p> <p>Dr. Sumalika Morakul, KU Dr. Ulaiwan Withayagiat, KU</p> <p>Dr. Kriskamol Na Jom, KU</p> <p>Assoc. Prof. Dr. Navaphattra Nunak, KMITL</p> <p>Assoc. Prof. Dr. Taweepol Suesat, KMITL</p> <p>Asst. Prof. Dr. Gerhard Schleining, BOKU</p> <p>Dipl.-Ing. Rainer Svacinka, BOKU</p> <p>Dr Line Friis Lindner, BOKU</p>

UNITE (Teramo, Italy) 12-13 April 2017	
<p>Wed, 12 April 2017</p> <p><i>Place Board meeting room Law Faculty</i></p>	<p>9:00 Welcome @ UniTE</p> <p>Prof. Dino Mastrocola, vice Rector University of Teramo</p> <p>Prof. Antonello Paparella, Dean of the Faculty of Bioscience and Technology for Food Agriculture and Environment</p> <p>Prof. Paola Pittia, vice –Rector of Internationalisation of UniTe, reference scientists of SEA-ABT project</p> <p><u>9:15: Quality and microbial safety aspects</u></p> <ol style="list-style-type: none"> 1. Food Safety issues in fruit juice processing", prof. Antonello Paparella 2. Design and development of innovative beverages , prof. Paola Pittia (seminar) 3. Visits to the Faculty of Bioscience labs (Food Technology and Microbiology) <p><i>Lunch @ UniTE Canteen</i></p> <p><u>14:30 Quality and chemical safety aspects</u></p> <p>"Assessment of quality and safety of beverages via innovative rapid assays" – prof. Dario Compagnone (seminar)</p> <p>Demonstration activities in lab: 1) detection of polyphenols via gold nanoparticles formation 2) use of e-nose for quality control 3) detection of pesticides via liquid chromatography mass spectrometry – prof. Dario Compagnone</p> <p><u>17:30-18:30</u> : Briefing on the SEA-ABT project (UniTE tasks, WP2, WP4)</p>
	<p><u>20:30</u> : <i>Dinner in a Restaurant in Teramo or nearby</i></p>
<p>Thursday, 13 April 2017</p>	<p><u>8:00</u> Departure from Hotel Abruzzi</p> <ol style="list-style-type: none"> 1. Visit at MEDIBEV (beverage packaging company of the REFRESCO group, Sulmona) (under definition) <p><i>Lunch ...somewhere in the area (under definition)</i></p>

	<p>15:00</p> <p>2. Visit at Zaccagnini winemaker company (processing area) (Bolognano)</p> <p>18:00 (max): back to Hotel Abruzzi</p> <p>Free evening-dinner</p>
Friday, 14 April 2017	3. Departure from Teramo
List of participants:	<p>Asst. Prof. Dr. Chaleeda Borompichaichartkul, CU</p> <p>Dr. Sarn Settachaimongkon, CU</p> <p>Asst. Prof. Dr. Sasitorn Tongchitpakdee, KU</p> <p>Dr. Sumalika Morakul, KU Dr. Ulaiwan Withayagiat, KU</p> <p>Dr. Kriskamol Na Jom, KU</p> <p>Assoc. Prof. Dr. Navaphattra Nunak, KMITL</p> <p>Assoc. Prof. Dr. Taweeapol Suesat, KMITL</p> <p>Paola Pittia, Associate Prof., UNITE</p> <p>Dario Compagnone, Full Prof. , UNITE</p> <p>Antonello Paparella, Full Prof., UNITE</p> <p>Lilia Neri, Assistant Professor., UNITE</p>

HGU (Geisenheim, Germany) 18-21 April 2017	
Monday 17.04.2017	Flight Rome – Frankfurt, hotel check in
Tuesday 18 April 2017	apple and berry processing
Wednesday 19 April 2017	apple and berry processing
Thursday 20 April 2017	pilot plant brewery including tasting
Friday 21 April 2017	pilot plant distillery including tasting
Saturday 22 April 2017	airport transfer or further private activities
List of participants:	<p>Asst. Prof. Dr. Chaleeda Borompichaichartkul, CU</p> <p>Dr. Sarn Settachaimongkon, CU</p> <p>Asst. Prof. Dr. Sasitorn Tongchitpakdee, KU</p> <p>Dr. Sumalika Morakul, KU Dr. Ulaiwan Withayagiat, KU</p>

	Dr. Kriskamol Na Jom, KU Assoc. Prof. Dr. Navaphattra Nunak, KMITL Assoc. Prof. Dr. Taweeapol Suesat, KMITL Prof. Dr. Frank Will, HGU Dipl. Ing. Michael Ludwig, HGU Peter Bach (technician), HGU Tim Dreifke (technician), HGU
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Evaluation report by the Thai participants to the training in EU (April 10-21, 2017)

EU training (April 10-21, 2017)

Monday, April 10, 2017

In the morning, Prof. Gerhard Schleining, a representative of the SEA-ABT program at BOKU, introduced the keynote speaker, Mr. HARALD SCHEIBLHOFER, a professor at the wine college named "Hochschul Bundeslehranstalt für Wein und Obstbau". He started from the target group of the college, learning and teaching activities, number of students and the job of the graduates. Then we visited the pilot plant and laboratory. There were many teaching equipment and machines such as juice extractor, filter machine, concentration machine. Before entering the fermentation and incubation process, we took a look at the fermentation and the distillation column equipment. This was a modern tool that operates with automation. Then we took to see the process of curing wine in a stainless steel tank. Mr. HARALD SCHEIBLHOFER described the production of many types of

wines. The importance of Oak and what if curing in a stainless steel tank would be equivalent to curing in an Oak barrel, the difference between Oak from each country such as the US, France, etc.

Then we visited the wine analysis laboratory which analyzes the chemical composition and properties of beverages. In addition, there were numerous research papers from this college published in the international journals.

In the afternoon, we took a tour of the SCHEIBLHOFER winery in Vienna. Mr. HARALD SCHEIBLHOFER explained the process of wine production from grape harvesting to fermentation and curing and bottling with modern tools. Then we tasted the different types of wines to analyze differences. The taste of each wine varies according to the species of grape, storage and production processes.

Tuesday, April 11, 2017

Prof. Gerhard Schleining, representative of the SEA-ABT at BOKU, introduced speaker and administrative staff to the SEA-ABT Thai delegates. During the morning session, a seminar devoted to microbial safety concerns in beverage production was given by Dr. Marija Zunabovic-Pichler. She started with the fundamental background on microbial safety of food and beverage. Major types of pathogenic microorganisms associated

with food including bacteria, fungi, viruses and protozoa were demonstrated. Epidemic data and statistics reveal that, among these pathogens, *Listeria monocytogenes* and *Campylobacter* spp. are the most predominant agents causing foodborne disease in EU. Important factors influencing microbial contamination, microbial cell adaptation in food matrices and biofilm formation on food contact surfaces were mentioned. Their virulence factors and preventive controls were also discussed. The speaker gave attention on certain innovative technologies for food microbiological analysis. For example, innovative concepts of rapid immunoassay and metagenomics technology were highlighted. Finally, she demonstrated her active research on detection of microbial quality of tap water in Vienna metropolitan using on-line flow cytometry technology. This project allows a real-time assessment of water quality and safety possible.

Afterward, Dr. Marija Zunabovic-Pichler presented brief of garage concept which is one of WP4. The main idea of the garage concept is to develop the entrepreneurship skill for students starting from their knowledge and experience. The students must be grouping for creating the business idea and then submit the proposal to competition. We provide the specialist for coaching all students. Finally, they can make the business plan for supporting their business idea; the best business plan will be awarded the prize.

In the afternoon, Professor Gerhard Schleining, SEA-ABT Program Coordinator from BOKU, chairman of the SEA-ABT meeting. The agenda is about monitoring and planning of the project.

Wednesday, April 12, 2017

Upon the arrival, Prof. D. Mastrocola, Vice Rector and Prof. A. Paparella, Dean of the Faculty of Bioscience and Technology for Food, Agriculture and Environment, delivered a warm welcome to the SEA-ABT Thai delegates. Prof. P. Pittia, representative of the SEA-ABT Italian partner, reported the objectives and activities involved in this exchanged training program consisting of lectures, interactive discussion and excursions to the Italian beverage industries. The morning session devoted to quality and microbial safety concerns in beverage production. The first lecture given by Prof. A. Paparella was entitled “Food safety issues in fruit juice processing”. He gave attention on certain innovative technologies for microbial risk management and shelf-life extension of beverages. For example, innovative concepts of pasteurization, non-thermal processing, pulsed electric field and pulsed light technology as well as the application of bio-preservatives from plant extracts and bacteriocins were highlighted. The second lecture given by Prof. P. Pittia was entitled “Design and development of innovative beverages”. Her experiences on innovation in processing, product

formulation using alternative ingredients and packaging design for convenient life style were deliberated. Certain graduate students of UNITE also attended the lecture with SEA-ABT Thai delegates. This provided an interactive discussion and exchange of experiences between the two sides. The afternoon session devoted to quality and chemical safety concerns in beverage products. Prof. D. Compagnone gave a lecture entitled “Assessment of quality and safety of beverages via innovative rapid assays”. He demonstrated active researches on detection of functional compounds and toxins in beverages, e.g. polyphenols detection using gold nano-particles, trace chemicals detection using peptide-based modified e-nose and LC/MS. Afterwards, the SEA-ABT Thai delegates were guided to food microbiological and analytical chemistry laboratory of UNITE for demonstration of research facilities. A traditional Italian welcome dinner was arranged by UNITE.

Thursday, April 13, 2017

Two excursions to Italian beverage manufacturers were coordinated by Prof. P. Pittia and Prof. D. Compagnone. In the morning, the SEA-ABT Thai delegates were taken to visit REFRESCO GROUP, one of the largest manufacturers of packaging materials for Italian beverage industry, situated in Sulmona. This company was found in 2011 with an intention statement as “Our drinks on every table”. Its products include

mineral water, carbonated soft-drink, fruit juices, tea, high energy drinks. A welcome presentation regarding vision and mission of the company was given by their two R&D supervisors. Local site visits to the production areas of carbonated soft drink and fruit juices were endorsed. Technical knowledge transfer and discussion between academia and industrial party were effectively archived. In the afternoon, a visit to Italian winery named Zaccagnini, established since 1978 in Pescara, was organized. Many varieties of product including red, white, rose and sparkling wines are produced. The SEA-ABT Thai delegates were introduced by the winemaker, Mr. Concezio Marulli, to appreciate the horizontal landscape of vineyards, various wine production units and quality control laboratory. Finally, selective bottles of their product were given to all SEA-ABT Thai delegates as token of appreciation.

Friday, April 14, 2017 – Monday, April 17, 2017 Easter Holiday

Tuesday, April 18 - Wednesday, April 19, 2017

On the first 2 days of training, Prof. Dr. Frank Will and Mr. Michael Ludwig organized training on fruit juice processing: apple and berry processing. Comprehensive lecture contents included preparation steps (washing), crushing, mash enzyme treatment, pectin (structure and degradation), clarification, stabilization,

fining and preservative, evaporation. The pilot plant demonstration of black currant juice (concentrate) processing and apple juice processing were also shown to participants. During the training, participants had hands on experiences with different pilot plant scale machines ,such as Bucher L200-press, decanter and evaporator. Demonstration of enzyme applications in juice processing for viscosity reduction and clarification were also shown. Furthermore, effect of fining agents were also demonstrated through laboratory set up.

Thursday, April 20 - Friday, April 21, 2017

On the last 2 days of training, Prof. Dr. Frank Will organized about brewing and distillation. Comprehensive lecture contents included overview of purity laws, cider, malts, brewing, hop calculation, and distillation. In practical session, a 50 L brew were made on copper pilot plant. Details on brewing technique were explained by Mr. Arne Sperl, a brew master. For practical session for distillation, a mash preparation of perry were performed. However, because the distillery the heating element of small unit was broken one day before, the distillation could not me done during the training. Therefore, Dr. Frank showed the basics of German fruit distillery in theoretical and practical units.