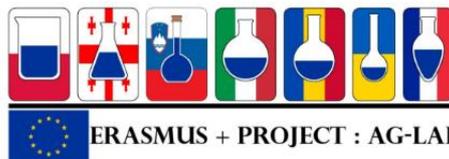




Co-funded by the
Erasmus+ Programme
of the European Union



Project “Improving skills in laboratory practice for agro-food specialists in eastern Europe» (Ag-Lab)

Program Erasmus +, project KA2 n° 586383-EPP-1-2017-1-SI-EPPKA2-CBHE-JP (2017-2978/001-001)

Programme of the training of laboratories staff

Objectives:

- to update the professional knowledge of specialists working at agro-food laboratories as for new EU regulation, procedures, rules, analytical methods;
- to address the gaps in professional knowledge of laboratories staff;
- to create the teams of trainers in order to share their knowledge with other laboratories and universities;
- to reinforce relations between universities and laboratories in agro-food sector and to create the conditions for the sustainable cooperation through the web-portal and other means.

Methods:

- the short terms theoretical training session in partner countries according to defined topics;
- the practical trainings (study visits) at laboratories of EU institutions ;
- the on-line lectures;
- the common editing of articles and the work on the manual devoted to the laboratory practice.

Quality assurance:

- the tests of knowledge of trainees before the training session or study visit and after it;
- the evaluation of the provided training quality by participants (clearness, completeness, practical usefulness etc.) with the further work for the improvement;
- the questioners for trainees a month after the training in order to evaluate the impact of the training on their professional activity;
- the questioners for unit heads of the laboratories two – three months after the training in order to evaluate the impact of the training on the professional activity of the trained staff;
- the report of the common lectures and trainings with universities.

Training content

Microbiology

1. Uncertainty of measurements in microbiology.
2. Validation of microbiological methods.
3. Organization of chemical and microbiological laboratories of a food enterprise (control over the formation of batches of raw materials and semi-finished products; sampling for testing; conducting of laboratory tests with raw food materials, semi-finished products and food products).
4. Virus isolation of spring viraemia of carp in cell culture.
5. Virus neutralization method in cell culture (FAVN-test).

6. Antimicrobial resistance. Determination of antibiotic resistance of microorganisms by PCR method, automated methods.

PCR

1. PCR – Uncertainty and validation.
2. Sampling from different products and sample preparation for PCR.
3. Pathological microorganism test in food, PCR (Quantitatively and Qualitative);
4. Species identification of microscopic fungi by PCR method.

Quality and metrology

1. Certification and accreditation of laboratories
2. Internal audit at the laboratory
3. General laboratory requirements (Good laboratory practice), certification and accreditation of laboratories, metrological support, international standards ISO 17025 (version 2017), ISO 9001, ISO 14001, ISO 45001, methods validation, biosafety level in the laboratory, European regulations of laboratory work, difference between standards in QMS
4. Internal and cross audit, verification, validation (confirmation), quality assurance of laboratory researches (intra and inter-laboratory control).
5. Procedures of calibration and verification of measurement equipment.
6. Calculation of the uncertainty in the metrology.

Food safety

1. Knowledge of mostly used recent analytical approaches in food industry (i.e. methods of atomic emission, gas and liquid chromatography, polymerase chain reaction, atomic absorption, ELISA, biochemical methods of analysis, etc.).
2. Knowledge of methods for the falsification determination of food raw materials and food products.
3. Falsification of dairy products (physical and chemical methods). Detection of the fatty acid composition of the fatty part of the product.
4. Falsification of honey, detection methods
5. Identification of authenticity and falsification of wines, juices, honey and other foodstuffs by nuclear magnetic resonance method.
6. Wine production quality control in the context of food safety
7. Radiation control of foodstuffs and feed by radiochemical analysis.
8. Determination of total α and β in water (radiology).
9. Dithiocarbamates in plant products by Headspace GC / MS
10. Polycyclic aromatic hydrocarbons in foodstuffs. Identification by GC / MS-MS
11. Volatile organic compounds in water (benzene, vinyl chloride, epichlorohydrin, acrylamide, etc.). Determination by purge and trap method GC / MS-MS
12. Ethanol and microcomponents of alcohol (falsification of alcoholic beverages (aldehydes, fusel oils, etc.). Identification by the method of GC / .
13. Determination of glyphosate by LC/MS-MS
14. Pesticide screening (350 indices) by LC / MS-MS using QUECHERS, GC / MS-MS.
15. Determination of anticoagulants by LC/UV
16. Simultaneous determination of mycotoxins by the LC/ MS-MS method using QUECHERS.
17. Determination of vitamins in foodstuffs by HPLC method
18. Identification of synthetic steroids by LC/MS-MS method.
19. Antibiotic testing in milk and milk products and meat and meat products - liquid chromatography methods;
20. Measurement of hormones in animal originated food products - liquid chromatography methods;

21. Determination of vitamins and aminoacids in raw materials, foodstuffs and feed, vitamin supplements, premixes by immunoassay (ELISA) and amino acid analyzer
22. Identification of preserving agents and other food additives in foodstuffs in accordance with the requirements of European Parliament and Council Regulation (EU) No. 1333/2008 on December,16 2008 by physical and chemical methods.
23. Modern methods of assessing the quality of drinking water by physical and chemical indices in accordance with the requirements of Council Directive 98/83 / EC of 3 November 1998 "On the quality of water intended for human consumption".
24. Modern methods of determining the quality indices in vegetable oils and animal fats using photometry
25. Determination of micro- and macroelements in water, products of plant and animal origin using ICP OS method.
26. Determination of acids by enzymatic bioanalysis in animal origin products
27. Determination of sugars by enzymatic bioanalysis in animal origin products.
28. Determination of alcohols by enzymatic bioanalysis in animal origin products.

Agronomy

1. Knowledge related to the organization of agro-chemical, seed and other agronomic laboratories (carrying out of seeds field inspection, control of seeds lots creation, packaging and labelling, sampling methods, laboratory analyses of seeds).
2. Plants viruses. Viral diseases of seeds and planting material. Laboratory diagnostic of plants viral diseases.
3. Laboratory diagnostic of pest diseases and fungi in plants.
4. Modern methods of assessing the quality and classiness of grain. Research on physical and chemical indices - method of infrared spectroscopy.