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VERSIONING AND CONTRIBUTION HISTORY

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LIST OF ABBREVIATIONS

- EFSC = Environmental and Food Safety Control
- OER = Open Education Resources
- MOOC = Massive open online course
- WARIAL = Web Accessed Remote Instrumental Analytical Laboratory (WARIAL) – acr. for network in the Project
- WB = Western Balkans Countries
- Programme Country: EU (France, Czech, UK)
- Partner Country: Serbia, Albania
ICT = Information & computer technology
SQL = Structured Query Language (Database program)
HEI = High Education Institution
SME = Small & Medium Enterprise (up to 300 employees)
CPD = Continuing professional development (CPD) courses
LLP = Life Long Learning (LLL) Programme
NETCHEM = means nothing (it is just acronym of our Project)

Purpose, objectives and elements of meeting

The second meeting of the NETCHEM consortium was organized as a three-day event at University of UPMC, in Paris and at CEA in Saclay, on 1st-3rd March 2017. The objectives of the meeting were:

- To analyse the knowledge/skills/practice in using OER and instrumental analysis in EFSC domain at universities and in enterprises
- To set up required competences and technical background in using OER and instrumental analysis

LIST OF PARTICIPANTS

University of Nis
1. Darko Andjelkovic
2. Aleksandra Zarubica

University of Pierre and Marie Curie, Paris
3. Annie Brossas
4. Jean Claude Tabet
5. Natali Stojiljković
6. Anna Warnet
7. Roselyne Freidenberg
8. France Uebersfeld
9. Laurent Emmanuel

Commissariat a l' Energie Atomique et Aux Energies Alternatives, Paris
10. François Fenaille

University of Belgrade, Faculty of Chemistry
11. Branimir Jovančićević
12. Gordana Gajica

University of Novi Sad, Faculty of Sciences
13. Ivana Ivančev Tumbas
14. Maja Turk

University of Kragujevac
15. Zoran Matović
16. Marina Čendić
1. **Presentation of the agenda by Annie Brossas**

2. **Presentation of CPD at UPMC by Mrs Freidenberg**

   The aim of this presentation was to present continuing education in France. Since 1971, UPMC being one of the most important University continuing education center in France, is the first university certified for continuing education by the bureau Veritas consulting (2016). UPMC is also Member of national (FCU) and European network of University Continuing Education (EUCEN).

   CPD of UPMC offers: short courses, academic qualifications (national degrees, university diploma & engineer’s degree), online courses.

   In France, for each employee, there is a credited personal training account at the rate of 24 hours per year for the first five years, then at the rate of 12 hours for the next two and a half years, within the limit of 150 hours.

   CPD aims to increase the level of qualification of each employee and to secure his professional career. CPD is financed by a single contribution of 1% on the payroll for all companies with more than 10 employees.

   This contribution is collected by training funders.

   CPD is an individual right registered in the labor code.

   More than 3,3 millions of CPD have been opened in august 2016, after the new reform.
3. **Presentation of accrediting skills acquired through experience (VAE) by Mrs Uebersfeld**

VAE is an accreditation of life experience. Like traditional initial training, apprenticeships and continuous training, the VAE gives access to diplomas. The VAE scheme makes it possible to gain all or part of a vocational diploma through the recognition of skills and knowledge obtained through professional experience.

This experience must be of at least three years and related to the diploma sought.

VAE allows:
- To obtain, in whole or in part, one of the diplomas, qualifications or certificates of qualification registered in the national register of professional qualifications.
- Directly access a training course without justifying the level of education or the diplomas and qualifications normally required.

VAE was introduced in French universities in 2002.

CPD and VAE are not EOR, because funding of these trainings is covered by mandatory corporate contributions.

These procedures do not exist in our partner countries.

4. **Presentation by Mr Emmanuel**, professor of geology, of his Net platform of geology dedicated to his students.

His platform needed 100 000 euros, and today he has no more subsidy.

5. **Presentation of the questionnaire collected at UPMC by Mrs Warnet.**

The 6 questionnaires (Analysts, head of laboratory, head of higher institutions, equipment distributors and students) are presented.

**Concerning the competences and technical background in instrumental analysis**, the master and PhD students mainly practice during their internship.

Practical works in instrumental analysis are often presented as demonstration at university, so not really developed.

The competence and technical background is almost acquired and developed in technician education.

That explains probably why in questionnaire of students and analysts it is possible to believe that they have few competence in instrumental analysis because in their internship or working they only use few instruments.

**Concerning EFSC**, UPMC has no specificity in these specialties. In France, it is Agroparitech, “THE” Institution forming Engineers in environment and food safety control.
Concerning using e-learning tools: no student used them
Certainly because the universities in France have their own web platform. UPMC is the first digital university. This explains why the students do not use external e-learning tools.
The main EOR used are scientific papers, printed publications, e-books and data base.
At UPMC EORs exist but not in chemistry, nor in EFSC

6. Intervention of Mr Andrejić
Mr Andrejić shared his experience on the contribution of his company in the support to the universities, committing for 5 years in the maintenance of mass spectrometers.
He spoke about the cost of online interventions on devices which is expensive and said that there are big differences between industry and university.
Moreover, the devices at the universities are only destined to research. They cannot be used for commercial use.
So after those 5 years what will happen?

Thursday, 02nd March 2017-UPMC

7. Discussion about the questionnaire of UPMC
Issues related to EOR, instrumental analysis and EFSC are posed.
It was decided to ask the questions to Mr Antonijević during the video conference.

8. Presentation of an e-lecture by Mr Tabet
While waiting for the connection with Mr Antonijević, Mr Tabet presented an animation on mass spectrometry describing the basic principle, the basic steps.

9. Intervention of a serbian technician of the digital service of UPMC
He is in charge of the practical organization of online course, and will perhaps help the consortium in the future.

10. Mr Antonijević canceled the visioconference.
11. **Presentation of the LEMM by Mr Fenaille**

The activity of the Laboratory for the Study of the Metabolism of Medicines (LEMM) is based on the development of analytical chemistry techniques (immunoanalysis and mass spectrometry), cell biology and molecular biology methods for biomedical research in the framework of partnerships industrial and academic.

The LEMM focuses on **three themes**:

- **Mass spectrometry of biological media**: the development of metabolomic, lipidomic and glycomic approaches by mass spectrometry for the detection of diagnostic biomarkers, the monitoring of diseases and the development of new methods for detection and quantification of proteins (biomarkers, bioterrorism agents, recombinant proteins) and small molecules (including drugs and their metabolites).

- **Cellular models development for the study of blood-brain barrier**: the development of models for *in vitro* studies of the blood-brain barrier.

- **Antibody engineering**: the development of antibody engineering techniques to study and optimize their pharmacokinetic properties for therapeutic or diagnostic applications.

12. Visit of the Mass spectrometry laboratory and biosafety class 3 lab.

13. **Presentation by Mr Dupuy (Thermofischer)**

Mr Dupuy presented the evolution and applications of Orbitrap HRAM (high-resolution, accurate-mass) technology coupled to liquid chromatography which enhances separation of unknown compounds and enables high-throughput workflows.

14. **Visit of LCH lab (Mrs Stojiljković)**

The French horse doping control laboratory (LCH) analyzes 45 000 biological samples every year mainly from France but also from many foreign countries. The majority of samples are collected from race horses but also from sport horses. Analysis of jockey samples is performed as well.

LCH is one of the world’s largest structure dedicated to the fight against doping and at the forefront of anti-doping research in Europe and around the world. It is also a reference laboratory of the International Equestrian Federation (FEI).

Each year, the LCH is audited by the French Accreditation Committee (COFRAC) on the basis of the ISO standard IEC 17025.
The LCH carries out research of contaminants in feeds and supplements intended for athletes horses.

CONCLUSION

Concerning questionnaire, it was decided

- to collect more and analyzed those of Greenwich and Brno.
- Not to treat “globally” the answers, particularly those of analysts and students
- To consider the answers for analytical instruments, only if the device is used.