Report of the activities of new researchers hired by CEFSER

During the first half of the CEFSER project, new researchers were involved in the following activities:

1. TRAININGS ON NEW INSTRUMENTS: After installation of the new equipement in the CEFSER lab, following trainings were organized:

- After the installation of the ultra high performance liquid chromatography (UHPLC) coupled to tandem mass spectrometer (MS/MS), introductory trainings were held by the service engineers of the Analysis, local distributor for Thermo Fisher Scientific, during the February and March 2010. Researchers were also introduced with basic theory behind UHPLC-MS/MS.
- In March 2010, service engineer from Thermo Fisher Scientific (Prague, Czech Republic), introduced researchers to UHPLC coupled to high resolution mass spectrometer with patented Orbitrap mass analyzer. They learned about basic maintenance and the instrument's hardware components.
- In April 2010 researchers were trained again by the engineers of the Analysis. The trainings included lost of the experimental works, learning basic maintenance and hardware troubleshooting, to method development, compound optimization, calibration and processing of the acquired data.
- In May, 2010, Dr. Michal Godula, European Food Safety Specialist from Thermo Fisher Scientific (Prague, Czech Republic) gave also practical lessons about UHPLC-MS/MS to the CEFSER lab members.
- In July, 2010, researchers were further trained by Dr. Michal Godula, Food Safety Specialist from Thermo Fisher Scientific (Prague, Czech Republic) for the UHPLC-MS Orbitrap with emphasis on the instrument calibration, running real samples and processing of the acquired data using instrument software. During the training they learned about strategies of screening of unknown contaminants in food.

2. INVOLVEMENT IN THE LAB ACTIVITIES: the newly employed members were introduced into the basics of different sample preparation techniques developed and applied in the Lab:

- preparation of soil and water samples for the determination of heavy element content
- various extraction and clean-up methods for the determination of PAHs in different food matrices (meat, sausages, fish, oil, flour)
- extraction of wheat flour, green coffee and paprika samples for the determination of mycotoxin content
- extraction of wheat flour samples for the determination of pesticide content

and also into the analytical methods that have been developed and used:

- gas chromatograph with flame ionization detector for PAHs analysis- preparation of calibration standards, manual injection of calibration standards, calibration of the instrument, manual injection of samples, data analysis with the appropriate software, optimization of the temperature program, instrument maintenance
- atomic absorption spectrometry with graphite furnace for the analysis of heavy elements- preparation of calibration standards, instrument calibration, sample analysis, data analysis with the appropriate software

They have been also included in the survey of the relevant literature, experimental data assessment, preparation of the manuscripts and poster presentations.

After the trainigs on the new instruments, the new researchers were involved in the development of mycotoxins analysis by UHPLC-MS/MS. The Lab participated in interlaboratory comparison on the mycotoxin analysis in food organized by the EC-JRC-IRMM, Geel, Belgium.

4. PREPARATION AND ORGANIZATION OF THE CEFSER EVENTS: new researchers were involved in the preparation and organization of the events organized within the CEFSER project at the Faculty of Technology:

- CEFSER Symposium "Communicating research to the public", 30 November 2009 (the researchers had active role with the oral presentations during the Symposium),
- 1st CEFSER Training Course "Capabilities of UPLC-MS/MS in Analysis of Contaminants and Pharmaceutical Compounds in Food and the Environment", 06-08 April 2010,
- 2nd CEFSER Training Course "Quality Assurance (QA) and Quality Control (QC) Procedures in Analysis of Contaminants and Pharmaceutical Compounds in Food and the Environment", 09 April 2010.

They were also contributed to the construction and maintenance of the CEFSER web site.