



V Praze, dne 31.1.2011

Registrační číslo projektu: **A/CZ0046/2/0026**

Název projektu: Identification and quantification of emerging organic contaminants in the Czech aquatic ecosystem and food market supply. With focus on perfluorinated alkylated compounds (PFC): EMERCON

Accomplished indicators within period VI/2009 – XII/2010:

Summary of indicators:

Predicted numerical value of Fund's Results indicators	Planned	Accomplished until 31/12/2010
Number of publications of results in prestigious journals (impacted, indexed or reviewed)	4	5 ^a
Sub-project with innovative approaches	Yes	Yes ^b
Sub-project lead by female expert (one of leading position)	Yes	Yes ^c
Sub-project lead by young expert (one of leading positions – not older than 35 y. at the moment of application)	Yes	Yes ^c
Sub-project lead by regional entity (applicant with seat outside of Prague or regional partner in one of leading positions)	No	No ^d
Number of organizations supported (applicant and partners)	3	3 ^d
Number of R&D events supported (active participation at public seminars, conferences, exhibitions)	6	8 ^e
Other values - please specify		
Analytical methodology	2	2 ^f
Experts exchange in Norway	3	3 ^g
Website for public with project results, number of visitors	1	1 ^h
Integration of young scientist into international collaboration	1	10 ⁱ
Sub-project meetings, public seminars and interactive educational students seminars	5	6 ^j



Predicted numerical value of Fund's Purpose indicators	Planned	Accomplished until 31/12/2010
Number of new grants / contract of partnerships between the Czech Republic and EEA EFTA countries	2	2 ^k
Number of products (e.g. methods, procedures, technologies) transferred (planned transfers)	2	2 ^f
Set up number of new patents, prototypes and/or industrial applications(planned number)	0	0
Other values - please specify at least one indicator and its value		
Database with the information on PFC levels in fish and various food products	1	1 ^l

- a Hrádková P., Poustka J., Hloušková V., Pulkrabová J., Tomaniová M., Hajšlová J.: **Perfluorinated Compounds: Occurrence of Emerging Food Contaminants in Canned Fish and Seafood Products.** *Czech J. Food Sci.*, Vol. 28, No. 4, 333–342 (2010), ISSN 1212-1800.

Hajslova J., Lacina O., Hradkova P., Poustka J., Rosmus J., Pulkrabova J. **Perfluorinated contaminants in fish: solution for ultra-trace analysis.** *Organohalogen Compounds*, 72 (2010), ISSN 1026-4892.

Hrádková P., Poustka J., Pulkrabová J., Lacina O., Hajšlová J.: **Analysis of perfluorinated compounds: method validation according to the Commission Decision 2002/657/EC.** *Proceedings of the 6th International Student Conference "Modern Analytical chemistry"*. ISBN 978-80-7444-005-2, p. 53-56 (2010).

Hrádková P., Pulkrabová J., Kalachová K., Hloušková V., Tomaniová M., Poustka J., Hajšlová J.: **Occurrence of halogenated contaminants in fish from rivers of the Czech Republic.** *Archives of Environmental Contamination and Toxicology*, submitted: December 31, 2010.

Lacina O., Hrádková P., Pulkrabová J., Hajšlová J.: **Simple, high throughput ultra-high performance liquid chromatography/tandem mass spectrometry trace analysis of perfluorinated alkylated substances in foods of animal origin: milk and fish.** *Journal of Chromatography A*, submitted: December 29, 2010.

- b Sub-project delivered a range of original outcomes listed in this document demonstrating its innovative approach.
- c Activity 3 (Evaluation of obtained results) was lead by female expert who was also young expert (Jana Pulkrabová), Activity 4 (Technology transfer) was lead by female expert (Monika Tomaniová). In addition, Project manager, leader of Activity 0 (Sub-project management), was also woman (Jana Hajšlová).
- d All sub-project partners (none of them acting as regional entity), ICT Prague, Czech Republic (end-recipient), NILU, Norway (Partner A) and SVI Prague (Partner B) were involved into the sub-project activities.
- e **4th International Symposium on Recent Advances in Food Analysis** (www.rafa2009.eu), November 4 - 6, 2009, Diplomat Hotel Conference Centre, Prague, Czech Republic:
K. Kalachová, P. Hrádková, J. Horáková, D. Herzke, S. Huber, E. Kallenborn, J. Pulkrabová, M. Tomaniová, J. Poustka, J. Hajšlová: Comparison of two different analytical methods for determination of perfluorinated compounds (PFCs) in fresh fish and fish products (poster)



Ústav chemie a analýzy potravin

P. Hrádková, J. Poustka, J. Pulkrabová, V. Hloušková, M. Tomaniová, D. Herzke, S. Huber, R. Kallenborn, J. Hajšlová: Optimization of analytical method for perfluorinated compounds in fresh and canned fish (poster)

Seminar "Rychlé chromatografické metody pro mnoho analytů v různých matricích: „Trend v analýze potravin a životního prostředí“, 11th February, 2010, Prague, Czech Republic:

J. Pulkrabová: Possibilities of perfluoroalkylated contaminants' analysis by GC" (Možnosti GC analýzy perfluoroalkylovaných kontaminantů) (lecture)

XL. symposium o nových směrech výroby a hodnocení potravin, May 3 - 5, 2010 Skalský Dvůr u Bystřice nad Pernštejnem, Czech Republic:

P. Hrádková, J. Poustka, J. Pulkrabová, V. Hloušková, J. Hajšlová: Metody sledování perfluorovaných sloučenin v rybách a rybích výrobcích (poster)

J. Pulkrabová, J. Poustka, P. Hrádková, K. Kalachová, J. Hajšlová: Perfluorované sloučeniny v životním prostředí a rizika přenosu do potravin (lecture)

2nd International Workshop on New Developments of Fluorinated Surfactants, June 17 - 19, 2010, Idstein, Germany:

K. Kalachová, P. Hrádková, D. Herzke, S. Huber, R. Kallenborn, J. Pulkrabová, J. Poustka, J. Hajšlová: Perfluorinated compounds in fish and fish products from the Czech and Norwegian market (poster)

30th International Symposium on Halogenated Persistent Organic Pollutants (POPs) (DIOXIN 2010), September 12–17, 2010, San Antonio, Texas, USA.

Hajšlova J., Lacina O., Hradkova P., Poustka J., Rosmus J., Pulkrabova J.: Perfluorinated contaminants in fish: solution for ultra-trace analysis (lecture).

6th International Student Conference "Modern Analytical chemistry", September 23–24, 2010, Prague, Czech Republic.

Hrádková P., Poustka J., Pulkrabová J., Lacina O., Hajšlová J.: Analysis of perfluorinated compounds: method validation according to the Commission Decision 2002/657/EC (lecture)

Seminar „Analýza organických látek v životním prostředí“, October 18–20, 2010, Komorní Lhotka, Czech Republic.

Hrádková P., Poustka J., Lacina O., Pulkrabová J., Hajšlová J.: Perfluorované uhlovodíky – možnosti jejich stanovení ve vzorcích životního prostředí a potravin (lecture).

124th AOAC Annual Meeting & Exposition, September 26–29, 2010, Orlando, USA.

Lacina O., Pulkrabova J., Hradkova P., Korba T., Hajšlova J.: Perfluorinated contaminants in foodstuff: simple, high throughput UHPLC-QTRAP MS ultra trace analysis (poster Nb. P-W 110).

In addition, project activities were presented at:

"Students' scientific conference", November 20, 2009, Institute of Chemical Technology, Prague, Czech Republic:

Veronika Hlouskova: Comparison of liquid chromatography coupled with mass spectrometry methods in analyses of perfluorinated compounds (lecture) – winner of the session Food Chemistry and Analysis II

Jana Horakova: Optimisation of the procedure for determination of volatile PFCs in fish muscle tissue (lecture)

Eva Tilgova: Levels of perfluorinated hydrocarbons in selected environmental samples (lecture)



Ústav chemie a analýzy potravin

“Students’ scientific conference”, November 19, 2010, Institute of Chemical Technology, Prague, Czech Republic:

Eva Tilgová: Perfluorinated compounds in food matrices (lecture)

Beata Fischerová: Advanced strategies in determination of perfluorinated compounds in animal food (lecture)

- f Bilingual **Standard operation procedure** (SOP 1) on “Analysis of perfluorinated compounds by LC-MS/MS method” & “Stanovení vybraných perfluorovaných uhlovodíků metodou LC-MS/MS” has been issued for participants of interlaboratory study.

Standard operation procedure (SOP 2) on “Stanovení (per)fluorovaných uhlovodíků, jejich derivátů a metabolitů metodou LC/MS” prepared by ICT Prague (end-recipient).

- g **Experts exchange** at NILU, Tromsø, Norway, for 3 young scientists, Ing. Petra Hrádková, Ing. Kamila Kalachová and Bc. Jana Horáková, has been organised in VII – IX/2009.

In addition, NILU experts’ stay, Dr. Sandra Huber, took place from May 25 to June 11, 2010, at the Institute of Chemical Technology, Prague.

- h **Sub-project website** www.emercon.cz has been released during the second month of the project lifetime.

- i Integration of 3 young scientists, Ing. Petra Hrádková, Ing. Kamila Kalachová and Bc. Jana Horáková, into international collaboration within experts exchange and following sub-project related activities has been initiated.

Other PhD student (Ing. Ondřej Lacina) and three MSc students (Bc. Darina Lanková, Bc. Renata Stehlíková and Bc. Marek Papež) participated at sub-project activities.

Two MSc students, Bc. Beata Fischerová and Bc. Eva Tilgová, participated at students training in laboratory (May – June 2010) focused on issues related to the sub-project topics.

Diploma thesis entitled “Sledování výskytu perfluorovaných uhlovodíků v potravinách a environmentálních matricích” (Monitoring of perfluorinated compounds in food and environmental matrices) of Veronika Hloušková and bachelor thesis entitled „Nové postupy v analýze perfluorovaných látek“ (New approaches in the analysis of perfluorinated compounds) of Jana Horáková have been focused on sub-project activities (February – May 2010).

Project results are also shown in PhD theses entitled “Nové strategie sledování biologicky aktivních kontaminantů” (New strategies in monitoring of biological active contaminants) of Kamila Kalachová and „Studium průniku průmyslových kontaminantů do potravních řetězců“ (Study of industrial contaminants’ release into food chains) of Petra Hrádková.

- j **Lecture for students** of Bc and MSc degrees, ICT Prague, was presented within the subject Food safety.

Sub-project evaluation meeting was organised on February 18 – 19, 2010 at NILU (Pratner A), in Kjeller (Oslo), Norway.

Workshop on “Quantitative trace analysis of Perfluorinated compounds (PFCs) in food and environmental matrices” has been organised on May 25 - 26, 2010, Prague, Czech Republic.

Workshop on „Analýzy PFCs v laboratořích dozorových organizací“ was organised by SVI Prague (Partner B) on October 26, 2010, Prague, Czech Republic.

Meeting aimed at building-up a cooperation in enviro-analysis area between enviro-teams of ICT Prague (end-recipient) and RECETOX, Brno and demonstration of approaches on PFCs analysis developed within the sub-project, was organised on November 24, 2010, Prague, Czech Republic.

Workshop on “Perfluorinated compounds (PFCs) and their occurrence in food and environmental matrices”, was organised on November 25, 2010, Prague, Czech Republic.



Ústav chemie a analýzy potravin

k **Partner agreement** between the Institute of Chemical Technology, Prague, Czech Republic and Norwegian Institute for Air Research, Oslo - Kjeller, Norway was signed on July 2009.

Project proposal within the 7th Framework Programme was submitted to the Commission on November 16, 2010.

Proposal full title: PEsticide Reduction MAnagement SOLutions

Proposal acronym: PERMASOL

Type of funding scheme: Research for CSOs

Work Programme topics addressed: ENV.2011.4.2.3-1 Community based management of environmental challenges

Proposal reference number: FP7- 283005

Co-ordinator of the project: NILU, Norway

ICT Prague: partner no. 6

l **Database** with the information on PFC levels in fish and various food products, created based on data obtained both from literature and within the sub-project activities was prepared.

After lifetime of the sub-project, following activities focused on presentation of the sub-project outcomes are planned / have already been accomplished:

a A peer reviewed article with the working title "Comparison of quantitative LC-MS based analytical methods for the determination of low level PFC concentrations in selected food samples." is under progress by Sandra Huber, Ondrej Lacina, Petra Hradkova, Jana Pulkrabova, Dorte Herzke, Roland Kallenborn and Jana Hajslova.

e **14. ročník soutěže** o nejlepší studentskou práci v oboru analytické chemie "**O cenu firmy MERCK 2011**", February 1, 2011, Ústí nad Labem, Czech Republic:

Marek Papež: „Nové organohalogenované kontaminanty ve vodním ekosystému“ (lecture) – 2nd award