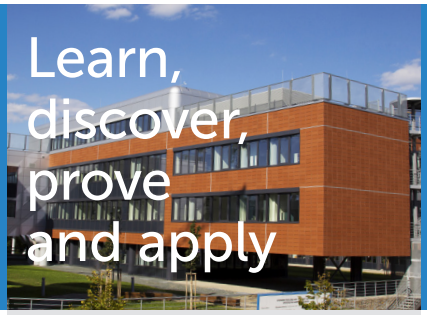
Research Centre for Toxic Compounds in the Environment

VOLUME 5 | NUMBER 3 | OCTOBER 2017

RECETOX NEWSLETTER

The RECETOX NEWSLETTER is a quarterly newsletter by the Research Centre for Toxic Compounds in the Environment (RECETOX), Brno, Czech Republic



RECETOX is an independent REsearch CEntre for TOXic Compounds in the Environment operating within the Faculty of Science, Masaryk University, Brno, Czech Republic. The Centre fulfills three roles: an academic institution providing university education, a research institution working on transformation of research into practical applications and a body supporting implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) and sound chemicals management in general, nationally and internationally.

In this issue

Editorial

Dear readers of this quarterly newsletter,

Welcome to this autumn 2017 issue. We were quite busy over the summer and plenty of international meetings took place in our premises. We have also published many papers and we wish to share outcomes of some projects with you.
In addition, autumn means starting meetings of new projects – such as these implemented in the frame of the Horizon 2020 ERA Planet project in Rome or preparatory meeting of the EU Teaming consortium held in Brno to prepare for the second phase of the call.
The newsletter also features brief summaries of trainings for specialists and events organized for specialists or general public in Czech Republic and abroad. We participated in Brno Health Days, Special Open Door Day or in the Science Night. We hosted regional consultation of the Central and Eastern European countries, delegates from Malaysia and trained laboratory and air monitoring experts from the Republic of Macedonia.
Finally, we wish a lot of success to all involved in the academic year 2017–2018 and we welcome our new colleagues who joined us up to end of September this year.

We wish you an autumn full of colours and a pleasant reading,
Katka Šebková, on behalf of all editors in this issue

P.S. — The RECETOX newsletter is also available automatically if registered through www.recetox.muni.cz or newsletter@recetox.muni.cz. It is published in English and Czech. The next issue will be released in very end of 2017.

Calendar of Events

- 4–9 September 2017, **Malaysian decision makers study tour in the Czech Republic**
- 11–15 September 2017, **training of laboratory experts from Republic of Macedonia (fYRoM),** RECETOX, Brno, Czech Republic
- 15 September 2017, **Special Open Door Day at Masaryk University,** Brno, Czech Republic
- 18–19 September 2017, **workshop on POPs monitoring and mercury management,** Astana, Kazakhstan
- 22 September 2017, **Mercury week, World Health Organization,** Geneva, Switzerland
- 22 September 2017, **Teaming project consortium meeting,** Brno, Czech Republic
- 23 September 2017, **RECETOX at Brno Health Days,** Brno, Czech Republic
- 23–29 September 2017, **1st meeting of the Conference of the Parties to the Minamata Convention on Mercury,** Geneva, Switzerland
- 2–3 October 2017, **Data management on chemicals – IpCHem,** Ispra, Italy
- 4 October 2017, **Workshop on accession to Minamata Convention,** Sarajevo, Bosnia and Herzegovina
- 6 October, **Science Night, Masaryk University,** Brno, Czech Republic
- 9–11 October 2017, **kick off workshop for SMURBS and IGOSP projects,** Rome, Italy
- 11–13 October 2017, **Mercury management and releases from chlor-alkali facilities,** Belgrade, Serbia
- 31 October 2017, **24th meeting of the Council of National Centre for Toxic Compounds,** Prague, Czech Republic
- 6–7 November 2017, **Annual meting of the Stockholm and Basel Regional Centres,** Barcelona, Spain
- 7–9 November 2017, **Expert meeting for update of the GMP guidance document,** Brno, Czech Republic
- 20–24 November 2017, **training of laboratory experts for POPs monitoring,** Rabat, Marocco
- 4–6 December 2017, **3rd UN Environmental Assembly meeting, UNEA3,** Nairobi, Kenya
- February 2018, **Closing meeting on mercury project (UNEP/WHO),** Rome, Italy

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On our projects

INTERWASTE implementation

INTERWASTE (Synergising International Research Studies into the Environmental Fate and Behaviour of Toxic Organic Chemicals in the Waste Stream) is a Marie Skłodowska-Curie Research and Innovation Staff Exchange Project of Horizon 2020 focussed on environmental contamination by toxic organic chemicals (specifically flame retardants and pharmaceutical and personal care products) arising from their presence in the waste stream. The project is co-ordinated by Professor Stuart Harrad at the University of Birmingham, UK, and is a collaboration between 27 research centres from Europe, Africa, Asia, Australasia, North and South America. The programme funds 87 research secondments between research groups both within and outside the EU. RECETOX researchers have had four secondments so far, which are described below.

Brano Vrana had a one-month secondment to the research group of Prof. Jochen Mueller at the The University of Queensland Queensland Alliance for Environmental Health Sciences, Brisbane, Australia in July 2017. During his stay he was testing performance of a novel hydrogel-based passive sampler for monitoring of pharmaceuticals and personal care products in municipal wastewater and investigated how passive samplers can be implemented in analytical workflows for the screening of waste water samples for suspect/non-target contaminants.

Lisa Melymuk had a two-month secondment to the research group of Prof. Miriam Diamond, and the University of Toronto, Canada in July/August 2017. She was working on setting up a new round of the INTERFLAB interlaboratory comparison for flame retardants. This interlaboratory comparison will assess comparability between around 15 international research groups (members of the INTERWASTE consortium) for analytical results for brominated, chlorinated and organophosphate flame retardants using dust from an e-waste processing facility.

Garry Codling is currently away on a 3 month secondment to the University of Cartagena in Columbia where he is working on chemometric techniques in complex multi-variable data analysis. These methods are valuable in analysis of large data sets with no clear correlation between variables or large numbers of variables. He is also working on extraction techniques for human adipose tissue and breast milk for target and non-target analysis and the development of a project to sample water, sediment and biota in the coastal areas of Columbia that will involve a student from Columbia visiting RECETOX in 2018 for analysis of these samples.

Alin Ionas is currently on a two-month secondment to the Ontario Ministry of Environment and Climate Change (MOECC). He is working on analysing dust samples from an e-waste processing facility from the Toronto area, using the GC(xGC) / APGC-QTOF infrastructure of the MOECC. The data processing is focused on detecting and identifying non-classical polyhalogenated contaminants, using Kendrick and H/Cl mass defect plots to drastically filter down the number of relevant polyhalogenated compounds from a sample that are worth focusing on.

Branislav Vrana tests hydrogel passive samplers in Australia.
Archive of RECETOX

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New Projects at RECETOX

ERA-planet at RECETOX

August 2017 brought us a good news that both SMURBS project (SMart URBan Solutions for Air Quality, Disaster and City Growth) and IGOSP (Integrated Global Observing Systems for Persistent Pollutants) have succeeded in the ERA-Planet internal call. ERA-Planet (The European network for observing our changing planet) is the EU Horizon 2020 project involving a network of 36 partner organizations from 14 EU countries and Switzerland. The aim of the project is to strengthen and promote the EU research in the Earth observation within the Group on Earth Observation (GEO) and Copernicus.

The SMURBS project aims at improving the quality of life of citizens and building the resilience of cities to air pollution and natural or man-made disasters through a set of "smart urban solutions" that take into account the current urban growth rate and long-term- and new- factors affecting human health. The IGOSP project will create a new integrated approach to real-time environmental monitoring of contamination of aerial, aquatic and terrestrial ecosystems by toxic substances using a fully integrated advanced sensor system and comprehensive information systems.

The kick-off meeting of all four selected projects (SMURBS, GEO Essential, IGOSP and iCUPE) took place on 9–11 October 2017 in Rome. For more information on individual projects visit http://eraplanet.meteo.noa.gr.

Pesticides in the Czech Soils

Several articles in the Czech press and interview on TV in "A dost" journal were bringing attention of the general public to a large scope pesticide contamination of ground waters in the Czech Republic over the summer and in September 2017. Nevertheless, this problem is known to experts for decades, as the Czech Hydrometeorological Institute, Department of Water Quality led by Dr. Vít Kodeš have been publishing data from the long term monitoring of pesticide levels in surface and ground waters of the Czech Republic at conferences and agricultural journals for many years and the information reached public though social media in summer 2017, at last.

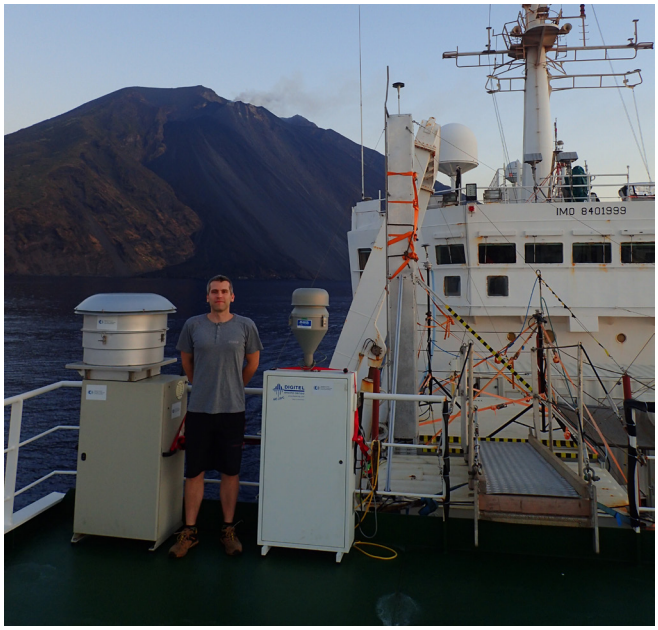
Truly speaking, monitoring outputs and published findings are quite worrying as more than a half of 700 sampling sites detected at least one pesticide or pesticide transformation product. Moreover, pesticides readily occur in multiple mixtures and/or in concentrations exceeding limit values in many of the contaminated samples. The findings do exhibit a relationship with an increased oilseed rape and maize cultivation and general trend of agricultural management in the last decade. Unfortunately, current agricultural production of food, feed and biomass are inseparable from the use of herbicides, fungicides and insecticides. Annual worldwide consumption of pesticides is about 3.3 million tons, including 420 thousand tons in Europe and 4.8 tons in the Czech Republic CR (FAO and CISTA data). It is known, the majority of this amount enters into agricultural soil, where it stays for a certain time, however monitoring programs of agricultural soils for pesticide residues are quite rare (the largest ones are known from Korea, Hungary and Spain).

The soil group at RECETOX started implementation of a Czech Science Foundation project in 2015, comprising also a survey of pesticide residues in Czech arable soils. The team collected 75 samples of agricultural fluvisoils and analyzed

60 different currently used pesticides and their transformation products. Due to findings of the long term water monitoring, atrazine and simazine, two herbicides banned from use for more than decade (their transformation products) were also analyzed in collected samples.
Jakub Hofman, leader of the soil group at RECETOX, told us: "We expected that a large portion of agricultural soils would be contaminated by multiple co-occurring pesticide residues that would exceed existing limit values. Sadly, this was confirmed by analyses as in 51% of soil samples we detected five or more pesticides and 36% of soils contained three or more pesticides at levels exceeding 0.01 mg/kg. The most frequent were triazine herbicides (89% of samples) and conazole fungicides (73% of samples). After linking the crops cultivated to the soils studied for three years prior to sampling, we believe that simazine residues found originate from terbuthylazine applications on maize. In line with the EU law terbuthylazine can contain up to 3% of simazine as impurity and due to wide use of this pesticide (over 100 tons) the input of simazine to soils is several times higher than prior its ban. We also found significant correlations between pesticide occurence in soils and their properties (solubility, hydrophobicity and half-life)".
Researchers could not explain frequent findings of atrazine transformation products (hydroxatrazine in particular) the same way. In that case it seems that this chemical is a highly persistent residue mirroring the past intensive use of atrazine before its ban.
"Considering the findings of the RECETOX soil project and results of the long term water monitoring, we strongly advocate for a regular monitoring of pesticide occurrence in the Czech agricultural soils and use of the information collected in the processes of national agricultural management and authorization of the pesticide use", underlined Jakub Hofman.

AQUABA – Air Quality Study in the Arabian Basin

What are the background levels of persistent organic pollutants (POPs) under the summer monsoon over the Arabian Sea and in its surface seawaters? How are polycyclic aromatic hydrocarbons emitted from oil industries in the Persian Gulf transformed under conditions of strong photochemistry? Are these pollutants then accumulating in or even re-volatilizing from surface seawaters?
Answers will be sought by using air and surface seawater samples collected by Roman Prokeš (RECETOX) and Minas Iakovides (Cyprus Institute, Aglantzia, Cyprus) during the research cruise aboard of the Kommandor Iona, a British ship, which cruised some 20.000 km around the Arabian Peninsula and across the Mediterranean during July-August this summer. This research is lead by professors Gerhard Lammel (RECETOX and Max Planck Institute for Chemistry, Mainz, Germany), Brano Vrana (RECETOX) and Euripides Stephanou (Cyprus Institute).The vessel chartered by Max Planck Institute for Chemistry as a research platform to study air quality and climate change in the Arabian Basin (AQABA campaign). The region is characterized by rude climatic conditions and severe air pollution. Environmental research in the area is lacking observational data of various important pollution parameters and especially of toxic semi-volatile organic substances.
30 scientists from five countries participated and, together with local partners from Saudi Arabia and Kuwait, joined to provide data from a unique combination of chemical and physical methods as the basis for air pollution and climate studies in the region, including related effects for human health and the ecosystems. Researchers expect data and insights in the cycling of organic pollutants rarely or even not at all addressed in the Middle East and surrounding seas so far.



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RECETOX News

RECETOX in brief

We are happily announcing a new arrival to Anežka and Brij Sharma family – congratulations on their son Milind born in August.

Handbook on Cyanobacteria Released

Our toxicologists, Luděk Bláha, Ondřej Adamovský, Jiří Kohoutek and Lucie Bláhová contributed to a large handbook published by John Wiley and Sons in January 2017 by three chapters and four procedures on sample preparation/analysis. The outcome is a practical book that contains not only a summary of the knowledge about cyanobacteria and their toxins, but also overview of practical methods and 29 standard operational procedures (SOP) for sample processing and analysis. The book will find use in the lab, academia, government, and industrial facilities. See Handbook of Cyanobacterial Monitoring and Cyanotoxin Analysis, editors: Jussi Meriluoto, Lisa Spoof, Geoffrey A. Codd, ISBN: 978-1-119-06868-6, 576 pages, January 2017.

Student Awards

Jan Šťourač received Award of the Dean of Faculty of Science, Masaryk University for the best diploma thesis in May 2017. Petra Babková got the International Crystallography Union Award and the IUCr Journals Student Poster Prize at the International School on Biological Crystallization (ISBC) 2017 in Granada.
Moreover, Daniel Pluskal, student of the Gymnázium Řečkovice (grammar school) won the first prize in Chemistry in the national round of the secondary school professional activity contest in June 2017 and also received an award by the Learned society of the Czech Republic. Many thanks and congratulations also to Radka Chaloupková, who supervised Daniel during his research in RECETOX laboratories.
Congratulations to all awardees!

Invitation to a Elixir CZ Conference

The ELIXIR CZ Research Infrastructure for storage, processing and analysis of life science data organizes the second meeting of a conference that will take place in Třešť, Czech Republic 15–16 November 2017. Apart from plenary lectures by prominent international scientists, prof. Helen Bergman of Rutgers University and Barend Mons of Leiden University Medical Center, the conference will give the participants an overview about ELIXIR CZ and partner infrastructures and their research. Registration is now open (www.elixir-czech.cz).

Our Research in the Czech Press

The Czech press published several articles about our research this summer – an interview on substances in sunblock creams with Pavel Čupr, section Excellent Science commented on our CETOCOEN+ project and on arrival of Professor Martin Scheringer to RECETOX in the national Lidové noviny journal in July. An article about allergies and an interview with Professor Vojtěch Thon was featured in INSTINKT (weekly magazine) in July. Finally, Lidové noviny commented on the research of our teams and partner organizations on the consequences of water pollution "Fish in the Czech Republic Change Gender" and Sewage destroys fish "male features" in end of August. The texts are in Czech only, and you can also find them on our website - see news section.

Most influential article of Microbial Cell Factories

The highest Altmetric score (number of sharing and amount of hits on various platforms) for the publication by Dvořák, P., Chrást, L., Nikel, P. I., Fedr, R., Souček, K. Sedláčková, M., Chaloupková, R., de Lorenzo V., Prokop, Z., and Damborský, J., 2015. Exacerbation of Substrate Toxicity by IPTG in Escherichia Coli BL21(DE3) Carrying a Synthetic Metabolic Pathway. Microbial Cell Factories, London: BioMed Central, 2015, vol. 14, no. 201, p. 1-15. ISSN 1475-2859. DI 10.1186/s12934-015-0393-3) ranked it the most influential article of 2016 in the Microbial Cell Factories Journal. Congratulations to Professor Damborský team!

Brno Health Days 2017

The RECETOX supported the 23rd week of Brno Health Days held in many Brno locations 22 September –1 October 2017. More than 80 participants attended our two lectures on Health of Brno citizens through ELSPAC study and on Nutrition Epidemiology at the premises of Faculty of Medicine in Komenského square on Saturday 23 September 2017.

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Our recent activities

RECETOX Research Outputs

Up to end of September 2017, there are 135 research outputs including two patents and more than 120 research papers. Please find enclosed a selection of seven published ones showing a breadth of our research:

1. Filipova, L.; Kohagen, M.; Stacko, P.; Muchova, E.; Slavicek, P.; Klan, P. Photoswitching of Azobenzene-Based Reverse Micelles above and at Subzero Temperatures As Studied by NMR and Molecular Dynamics Simulations. Langmuir (2017), 33 (9), 2306–2317.
2. Kaushik, S.; Prokop, Z.; Damborsky, J.; Chaloupkova, R. Kinetics of binding of fluorescent ligands to enzymes with engineered access tunnels. FEBS Journal (2017), 284 (1), 134–148.
3. Lammel G., Spitzy A., Audy O., Beckmann S., Codling, G. P., Kretzschmann L., Kukucka P., Stemmler I. Organochlorine pesticides and polychlorinated biphenyls along an east-to-west gradient in subtropical North Atlantic surface waters. Environmental Science and Pollution Research (2017), 24 (12), 11045–11052.
4. Mikulu, L.; Michalicova, R.; Iglesias, V.; Yawer, M. A.; Kaifer, A. E.; Lubal, P.; Sindelar, V. pH Control on the Sequential Uptake and Release of Organic Cations by Cucurbit[7]uril. Chemistry-A European Journal (2017), 23 (10), 2350–2355.
5. Prochazkova, T.; Sychrova, E.; Javurkova, B.; Vecerkova, J.; Kohoutek, J.; Lepsova-Skacelova, O.; Blaha, L.; Hilscherova, K. Phytoestrogens and sterols in waters with cyanobacterial blooms - Analytical methods and estrogenic potencies. Chemosphere (2017), 170, 104–112.
6. Bienertova-Vasku, J.; Zlamal. F.; Prusa, T.; Novak, J.; Mikes, O.; Cupr, P.; Pohorala, A.; Svancara, J.; Andryskova, L.; Pikhart, H. Parental heights and maternal education as predictors of length/height of children at birth, age 3 and 19 years, independently on diet: the ELSPAC study. European Journal of Clinical Nutrition (2017), in press. DOI: 10.1038/ejcn.2016.244.
7. Vojta, S.; Melymuk, L.; Klanova, J. Changes in flame retardant and legacy contaminant concentrations in indoor air during building construction, furnishing and use. Environmental Science & Technology (2017), accepted. DOI: 10.1021/acs.est.7b03245.

New Patent – contaminated water samples

Team of our ecotoxicologists, Michal Bittner, Sergio Jarque and associated professor Klara Hilscherová, have successfully developed a quick and low-cost bioassay for the determination of estrogens and androgens in water. This test was developed within the framework of the "Proof of concept" project by the Centre for the Transfer of Technologies of Masaryk University (CTT) "Development of the System of Commercialization of R & D Results at MU", supported by the Czech Technology Agency in the Gamma program.

The bioassay cornerstone are genetically engineered yeast with an estrogenic or an androgenic receptor. A standard version of the bioassay has been used in RECETOX laboratories for many years, but one analysis takes several days and must be done in a sterile environment. The newly patented bioassay provides results within a few hours and does not require water treatment or sterile environment (clean rooms). However, the increase in the detection limit by one order of magnitude is the price for the test velocity and robustness. The bioassay is thus suitable for a rapid screening of water samples substantially contaminated by estrogenic or androgenic substances. The new bioassay is protected by the Czech patent No. 306 626.

Science Night at RECETOX

Masaryk University participated in the European Science night featuring a joint "Mobility" topic on 6 October 2017 from 6pm till midnight. RECETOX approached it our way and we prepared several stands in the long corridor at the Brno Bohunice Campus. Young visitors as well as their parents discover transport of plastics (polyethylene PET bottles) as a journey with "PET around the globe" and searched for answers how to produce PET bottles, where to find PET around us and where it is deposited. They assembled their own polymer and learned where PET helps and where it is a nuisance. It was very lively around our stand and more than 6000 visitors came to Masaryk University this year.

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Activities of the Stockholm Convention Regional Centre

The Stockholm Convention Regional Centre in the Czech Republic (SCRC) hosted at RECETOX continues to provide support to other countries and regions, in particular in relation to monitoring, sampling and analyses of toxic chemicals in the environment and in capacity building activities.

Upcoming Events

POPs Monitoring Experts Meeting

Updates of Global Monitoring Plan guidance document will be discussed by POPs monitoring experts in a three day meeting held in Brno 7–9 November 2017. The meeting will cover the chemicals listed to the Stockholm Convention (2015 and 2017) including sampling and analyses and will and start preparation for the next round of monitoring data collection (2014-2020) for the next effectiveness evaluation.

Workshop for CEE countries on effective participation in BRS expert groups

At the beginning of 2018, a training workshop for the Central and Eastern Europe and Central Asia will be carried out in Brno to strengthen capacities of the countries to participate effectively in meetings of the Stockholm and Rotterdam Conventions expert groups – Persistent Organic Pollutant Review Committee (POPRC) and the Chemical Review Committee (CRC) respectively. Details on the meeting will be specified in time.

Past Events

CEE Regional Consultations on Mercury and UNIDO workshop

Hot summer welcomed not only the participants of the 13th RECETOX International Summer School in June, but also Regional consultations of Central and Eastern European (CEE) and Central Asian countries in preparation for the first meeting of the Conference of the Parties to the Minamata Convention on Mercury on 12–13 July at RECETOX premises. All the countries were also invited to participate in the UNIDO workshop organized jointly by the Stockholm Convention Regional Centre in the Czech Republic hosted by RECETOX with a support from Switzerland on 11 July 2017. That workshop on the environmentally sound management of mercury-containing wastes aimed at experience sharing but also highlighted particular needs of countries in the region in relation to e-waste and mercury waste collection, recycling and disposal. Challenges and successes on waste management were shared by Belarus, Georgia, Moldova and other countries Lecturers also provided a good insight into the existing global guidelines, including guidelines for mercury waste management.

Training for Laboratory Specialists

Five-day training for 10 experts from the Ministry of Environment and Spatial Planning and from the Public Health Institute laboratories of the Republic of Macedonia (fYRoM) was held at RECETOX Trace Analytical Laboratories 11–14 September 2017. It aimed at capacity building in monitoring, sampling, pre-treatment and laboratory analytical techniques for the analyses of persistent organic pollutants, especially lindane. The training covered sampling in different environmental matrices, laboratory analysis and environmental data processing, as well as introduction to the health and environmental risk assessment. The program was very intense, but the participants really enjoyed their stay with us.

Study Tour for Experts from Malaysia

Three representatives of Malaysian Ministry of Natural Resources and Energy and Department of Environment spent an intense week in the Czech Republic 4–8 September 2017. They met with a number of Czech experts, from Ministry of the Environment, Ministry of Industry and Trade and representatives of industrial associations and unions to discuss policy measures on reducing or eliminating the use of POPs. We shared with them EU experience and legislation as well as practical examples either through visit in waste management facilities in Brno-Líšeň and Praha Malešice as well as showcased technologies for soil remediation at Dekonta premises in Slaný. In addition, RECETOX organized also a visit to its premises and a presentation of the work of the large research infrastructure as well as excursion to the central European background monitoring site for POPs at Košetice in the Vysočina Highlands.

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RECETOX at Mercury Week in Geneva

The first event of the "Mercury Week" celebrating the entry into force of the Minamata Convention on Mercury and the first meeting of the Conference of the Parties to the Minamata Convention on Mercury (COP1), took place in at World Health Organization premises in Geneva, Switzerland on 22 September 2017. High level representatives of Permanent Missions to the United Nations in Geneva, Ministry of Health and other health sector representatives participating in the Conference of the Parties were invited to attend an event "For Health, Make Mercury History".

RECETOX supported the event by participation in the high level segment panel where Kateřina Šebková, Director of the Stockholm Convention Regional Centre shared with the audience outputs of the workshop on the Health sector involvement to implementation of the Minamata Convention held in Bonn in 2015. They include four priority actions – a long-term education of health specialists focused on prevention of the exposure to mercury and to other chemicals, elimination of mercury uses in the health sector, information sharing with other countries of WHO European region especially on the the effects of mercury during fetal development, and development of specialized training programs, standard procedures and information sharing on the effects of mercury and its compounds on the mercury human health. Secondly, RECETOX Research Infrastructure decided to support this event by demonstrating techniques for sampling human hair and collected scalp hair samples to asses mercury exposure of interested participants and WHO staff. There were 110 samples collected and analyzed at RECETOX laboratories. RECETOX also supported WHO in implementation of the project "Development of a Plan for Global Monitoring of Human Exposure to and Environmental Concentrations of Mercury", by developing training material and by providing analyses of mercury levels in hair, blood and urine samples collected in Kyrgyzstan and Ghana. We would like to acknowledge the support of the RECETOX research infrastructure, in particular by the Trace Analytical Laboratories performing the mercury analyses. The RECETOX research infrastructure is supported by the project (LM2015051) funded by the Czech Ministry of Education, Youth and Sports.

Finally, RECETOX also supported a Thematic Session "How do we protect ourselves and the environment from mercury pollution?" held on Friday 29 September 2017 in the margins of the COP1 to the Minamata Convention in the International Conference Centre in Geneva (CICG) where Kateřina Šebková spoke on the matrices and methods for monitoring exposure to mercury in human tissues.

RECETOX research infrastructure provides **open access (free of charge)** to Czech and international researchers and experts to work on their projects and use the expertise and instrumentation available in our Centre.

Please note the following deadlines for submitting application forms or project proposals in 2017: 31 March, 30 June, 30 September, and 31 December.

Visit www.recetox.muni.cz/RI for the application procedure and further relevant details. Should you have additional questions, please contact Petra Růžičková, coordinator of the RECETOX research infrastructure (ruzickova@recetox.muni.cz).

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