

RESUME

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Work experience

March 2001
September 2016

Scientific collaborator

Mission:

Group leader of the Department of the Organic Trace Analysis (OTA):

- Method development and validation for the quantitative determination of trace organic compounds and emerging contaminants in different water matrices (wastewater, groundwater, surface water and lake water).
- Work performed under regulated environment (ISO 17025).
- Instrumentation used: GC-FID/ECD, GC-single quadrupole mass spectrometer (GC-MS), HPLC, HPLC-tandem mass spectrometry (HPLC-MS/MS).
- Compound groups under investigation: pesticides and transformation products, explosives, pharmaceutical compounds, industrial chemicals, illegal drugs etc.
- Supervision and support for laboratory technicians (4 – 5 people).
- Supervision of masterwork students in analytical chemistry in collaboration with universities and the ETHZ.
- Publication activity in peer-reviewed analytical journals.

October 1990
March 2001

Scientific assistant

Mission:

- Analytical chemist at the Institute of Environmental Protection and Agriculture (IUL) in the Department of General Analytical Chemistry.
- Determination of xenobiotics such as PCB, PAH, dioxins, organochlorine pesticides, polycyclic musk compounds in soil and sewage sludge.
- Methods used: supercritical fluid extraction (SFE), accelerated solvent extraction (ASE) and solid phase extraction (SPE).
Chromatography: Adsorption-and gel permeation chromatography, GC and HPLC, GC-MS.
- Participation in different interlaboratory ring tests.
- Structure elucidation of metabolites using ¹H-NMR.

October 1988
March 2001

Research Fellow

Mission:

- Analytical chemist at the University Hospital Inselspital, Berne, Department of Dermatology (head: Prof. A. Krebs) .
- Synthesis, structural characterization and biochemical activity of dithranol derivatives.

Diplomas and education

March 2001
September 2013

Different courses in :

- Instrumentation: HPLC, GC, GC-MS (Agilent), HPLC-MS/MS (AB Sciex, Waters)
- ISO 17025 norm
- Measurement uncertainty (MU)
- Intercalibration exercises
- Introductory lecture to Psoriasis disease.

January 1985
November 1986

Postdoctoral-fellow

- University of British Columbia (UBC), Vancouver, Department of Chemistry (supervisor: Prof. J.P. Kutney)

Mission:

- Study of biotransformation reactions of fish-toxic diterpene acids such as dihydroabietic, abietic and isopimaric acids by *Mortierella isabellina* fungus immobilized in polyurethane foam.
- Structure elucidation of the hydroxylated metabolites using ¹H-NMR and mass spectrometry.
- Long term stability studies of the enzyme activity of cell immobilized organisms.

March 1981-
June 1984

University of Berne, Department of Chemistry, Switzerland

phD in organic analytical chemistry (supervisor: Prof. H.P. Pfander)

- Analytics and metabolism of carotenoids in plants.
- Isolation and spectroscopic characterization of trace carotenoids from the Solanaceae family and the *Narcissus cvv Golden Harvest* flower.
- Analytical skills: TLC, HPLC, HPLC-UV, GPC, CC, MS, NMR
- Close collaboration with researchers from Hoffmann La-Roche: Dres Englert (NMR), Meister (MS) and Novak (CD).

April 1979 - April
1980

University of Berne, Department of Chemistry, Switzerland

Master degree (Lizentiat) in organic analytical chemistry (supervisor: Prof. Dr. H.P. Pfander)

- Isolation of epoxy-carotenoids from *Lycopersicon esculentum* (tomato).
- Analytical skills: , liquid-solid extraction, TLC, HPLC, HPLC-UV, GPC, CC, MS, NMR

October 1975-
April 1980

University of Berne, Switzerland

- Studies in chemistry and biochemistry with emphasis on analytical chemistry.
- Course work: organic chemistry, biochemistry and analytical chemistry (separation and spectroscopy), environmental chemistry

Computing skills

Software

Microsoft Office (including Word, Excel, Power Point), Isis Draw
Instrumentation: Chem Station (Agilent), Analyst (AB Sciex),
Mass Lynx (Waters)

Publications:

- 1) Been, F., Bijlsma, L., Botero-Coy, A. M., Hernandez, F., Benaglia, L., Delemont, O., Esseiva, P., Berset, J.-D., Castiglioni, S., Kraus, L., Zobel, F., Schaub, M. P., Bucheli, A., and Ort, C. (2016) Assessing geographical differences in illicit drug consumption--A comparison of results from epidemiological and wastewater data in Germany and Switzerland. *Drug Alcohol Depend* 161, 189-199.
- (2) Trautwein, C., Berset, J.-D., Wolschke, H., and Kuemmerer, K. (2014) Occurrence of the antidiabetic drug Metformin and its ultimate transformation product Guanylurea in several compartments of the aquatic cycle. *Environ. Int.* 70, 203-212.
- (3) Ort, C., van, N. A. L. N., Berset, J.-D., Bijlsma, L., Castiglioni, S., Covaci, A., de, V. P., Emke, E., Fatta-Kassinos, D., Griffiths, P., Hernandez, F., Gonzalez-Marino, I., Grabic, R., Kasprzyk-Hordern, B., Mastroianni, N., Meierjohann, A., Nefau, T., Ostman, M., Pico, Y., Racamonde, I., Reid, M., Slobodnik, J., Terzic, S., Thomaidis, N., and Thomas, K. V. (2014) Spatial differences and temporal changes in illicit drug use in Europe quantified by wastewater analysis. *Addiction* 109, 1338-1352.
- (4) Brewer, A. J., Ort, C., Banta-Green, C. J., Berset, J.-D., and Field, J. A. (2013) Normalized Diurnal and Between-Day Trends in Illicit and Legal Drug Loads that Account for Changes in Population [Erratum to document cited in CA157:270874]. *Environ. Sci. Technol.* 47, 11912.
- (5) Stamm, C., Siber, R., Singer, H., Ochsenbein, U., Berset, J.-D., Scheiwiller, E., and Muff, D. (2012) Event-related pesticide monitoring, with the example of the Gurbe (Bern Canton). *Aqua Gas* 92, 24-32.
- (6) Ochsenbein, U., Berset, J.-D., Scheiwiller, E., and Guthruf, K. (2012) Micropollutants in the Aar basin. *Aqua Gas* 92, 68-79.
- (7) Brewer, A. J., Ort, C., Banta-Green, C. J., Berset, J.-D., and Field, J. A. (2012) Normalized Diurnal and Between-Day Trends in Illicit and Legal Drug Loads that Account for Changes in Population. *Environ. Sci. Technol.* 46, 8305-8314.
- (8) Berset, J.-D., and Ochsenbein, N. (2012) Stability considerations of aspartame in the direct analysis of artificial sweeteners in water samples using high-performance liquid chromatography-tandem mass spectrometry (HPLC-MS/MS). *Chemosphere* 88, 563-569.
- (9) Wang, H., Zhang, J., Gao, F., Yang, Y., Duan, H., Wu, Y., Berset, J.-D., and Shao, B. (2011) Simultaneous analysis of synthetic musks and triclosan in human breast milk by gas chromatography tandem mass spectrometry. *J. Chromatogr. B: Anal. Technol. Biomed. Life Sci.* 879, 1861-1869.
- (10) Mathieu, C., Rieckermann, J., Berset, J.-D., Schuerch, S., and Brenneisen, R. (2011) Assessment of total uncertainty in cocaine and benzoylecgonine wastewater load measurements. *Water Res.* 45, 6650-6660.
- (11) Godejohann, M., Berset, J.-D., and Muff, D. (2011) Non-targeted analysis of wastewater treatment plant effluents by high performance liquid chromatography-time slice-solid phase extraction-nuclear magnetic resonance/time-of-flight-mass spectrometry. *J. Chromatogr. A* 1218, 9202-9209.
- (12) Kupper, T., de Alencastro, L. F., and Berset, J.-D. (2010) Determination of sources and emissions of persistent organic contaminants by means of sewage sludge: results from a monitoring network. *Environ. Pollut. (Dordrecht, Neth.)* 16, 147-157.
- (13) Berset, J.-D., Brenneisen, R., and Mathieu, C. (2010) Analysis of Illicit and illicit drugs in waste, surface and lake water samples using large volume direct injection high performance liquid chromatography: Electrospray tandem mass spectrometry (HPLC-MS/MS). *Chemosphere* 81, 859-866.
- (14) Godejohann, M., Heintz, L., Daolio, C., Berset, J.-D., and Muff, D. (2009) Comprehensive

- Non-Targeted Analysis of Contaminated Groundwater of a Former Ammunition Destruction Site using ¹H-NMR and HPLC-SPE-NMR/TOF-MS. *Environ. Sci. Technol.* **43**, 7055-7061.
- (15) Ochsenbein, U., Zeh, M., and Berset, J.-D. (2008) Comparing solid phase extraction and direct injection for the analysis of ultra-trace levels of relevant explosives in lake water and tributaries using liquid chromatography-electrospray tandem mass spectrometry. *Chemosphere* **72**, 974-980.
 - (16) Mueller, A., Schulz, W., Seitz, W., Weber, W. H., and Berset, J.-D. (2008) Mass spectrometry in water analysis. Screening for TNT transformation products in water. *GIT Labor-Fachz.* **52**, 899-902.
 - (17) Reiner, J. L., Berset, J. D., and Kannan, K. (2007) Mass flow of polycyclic musks in two wastewater treatment plants. *Arch. Environ. Contam. Toxicol.* **52**, 451-457.
 - (18) Berset, J.-D., Ochsenbein, U., and Zeh, M. (2007) Highlights of analytical chemistry in Switzerland: Are Lake Thun and Lake Brienz contaminated with explosive residues? *Chimia* **61**, 532.
 - (19) Kupper, T., Berset, J. D., Etter-Holzer, R., Furrer, R., and Tarradellas, J. (2004) Concentrations and specific loads of polycyclic musks in sewage sludge originating from a monitoring network in Switzerland. *Chemosphere* **54**, 1111-1120.
 - (20) Berset, J. D., Kupper, T., Etter, R., and Tarradellas, J. (2004) Considerations about the enantioselective transformation of polycyclic musks in wastewater, treated wastewater and sewage sludge and analysis of their fate in a sequencing batch reactor plant. *Chemosphere* **57**, 987-996.
 - (21) Ferrari, S., Mandel, F., and Berset, J. D. (2002) Quantitative determination of 1-hydroxypyrene in bovine urine samples using high-performance liquid chromatography with fluorescence and mass spectrometric detection. *Chemosphere* **47**, 173-182.
 - (22) Berset, J.-D., and Etter-Holzer, R. (2001) Determination of phthalates in crude extracts of sewage sludges by high-resolution capillary gas chromatography with mass spectrometric detection. *J. AOAC Int.* **84**, 383-391.
 - (23) Berset, J. D., Kuehne, P., and Shotyk, W. (2001) Concentrations and distribution of some polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) in an ombrotrophic peat bog profile of Switzerland. *Sci. Total Environ.* **267**, 67-85.
 - (24) Herren, D., and Berset, J. D. (2000) Nitro musks, nitro musk amino metabolites and polycyclic musks in sewage sludges. Quantitative determination by HRGC-ion-trap-MS/MS and mass spectral characterization of the amino metabolites. *Chemosphere* **40**, 565-574.
 - (25) Berset, J.-D., Bigler, P., and Herren, D. (2000) Analysis of Nitro Musk Compounds and Their Amino Metabolites in Liquid Sewage Sludges Using NMR and Mass Spectrometry. *Anal. Chem.* **72**, 2124-2131.
 - (26) Rothweiler, B., and Berset, J.-D. (1999) High sensitivity of ortho-substituted polychlorobiphenyls in negative ion mass spectrometry (NCI - MS): a comparison with EI - MS and ECD for the determination of regulatory PCBs in soils. *Chemosphere* **38**, 1517-1532.
 - (27) Herren, D., and Berset, J. D. (1999) Nitro musks, nitro musk amino metabolites and polycyclic musks in sewage sludges. Quantitative determination by HRGC-ion-trap-MS/MS and mass spectral characterization of the amino metabolites. *Chemosphere* **40**, 565-574.
 - (28) Berset, J. D., and Holzer, R. (1999) Quantitative determination of polycyclic aromatic hydrocarbons, polychlorinated biphenyls and organochlorine pesticides in sewage sludges using supercritical fluid extraction and mass spectrometric detection. *J. Chromatogr. A* **852**, 545-558.
 - (29) Berset, J. D., Ejem, M., Holzer, R., and Lischer, P. (1999) Comparison of different drying, extraction and detection techniques for the determination of priority polycyclic aromatic hydrocarbons in background contaminated soil samples. *Anal. Chim. Acta* **383**, 263-275.
 - (30) Berset, J. D., Holzer, R., and Hani, H. (1998) Solving coelution problems on a smectic-liquid crystalline polysiloxane capillary column for the determination of priority polycyclic aromatic hydrocarbons in environmental samples. *J. Chromatogr. A* **823**, 179-187.
 - (31) Raverdino, V., Holzer, R., and Berset, J. D. (1996) Comparison of high resolution gas chromatography with electron impact and negative ion mass spectrometry detection for the determination of coplanar polychlorobiphenyl congeners in sewage sludges. *Fresenius' J. Anal. Chem.* **354**, 477-482.

- (32) Berset, J. D., and Holzer, R. (1996) Determination of coplanar and ortho substituted PCBs in some sewage sludges of Switzerland using HRGC/ECD and HRGC/MSD. *Chemosphere* 32, 2317-2333.
- (33) Berset, J. D., and Holzer, R. (1995) Organic micropollutants in Swiss agriculture: distribution of polynuclear aromatic hydrocarbons (PAH) and polychlorinated biphenyls (PCB) in soil, liquid manure, sewage sludge and compost samples; a comparative study. *Int. J. Environ. Anal. Chem.* 59, 145-165.
- (34) Berset, J. D., and Holzer, R. (1994) Separation of important PCBs and PAHs on a prototype smectic liquid-crystalline polysiloxane stationary phase capillary column. *Chemosphere* 28, 2087-2099.
- (35) Berset, J. D., and Krebs, A. (1990) Synthesis, characterization, racemate separation and biochemical properties of 10-acyl derivatives of chrysoarobin: sorbylchrysoarobin, β -carbethoxypropionylchrysoarobin and senecierylchrysoarobin. *Pharm. Acta Helv.* 65, 39-45.
- (36) Berset, J. D., and Krebs, A. (1990) Chemical instability of the antipsoriasis drugs dithranol and chrysoarobin in aqueous systems. Oxidative behavior. *Pharm. Acta Helv.* 65, 66-69.
- (37) Berset, J. D., and Krebs, A. (1990) Synthesis and biochemical properties of further 10-acyl derivatives of dithranol: acetylsalicyldithranol and L-acetyllactyldithranol. *Pharm. Acta Helv.* 65, 14-19.
- (38) Berset, J. D., and Krebs, A. (1990) Synthesis and characterization of new 10-acylderivatives of the antipsoriatic agent dithranol: coupling products of dithranol with all-trans-retinoic acid, 13-cis-retinoic acid and an aromatic analog of retinoic acid: all-trans-9-(4-methoxy-2,3,6-trimethylphenyl)-3,7-dimethyl-nona-2,4,6,8-tetraenoate. *Pharm. Acta Helv.* 65, 290-297.
- (39) Berset, J. D. (1990) 10-Acyldithranol dimers, new derivatives of the antipsoriasis drug dithranol. Synthesis, characterization, and biochemical properties. Part 2. *Pharm. Acta Helv.* 65, 155-164.
- (40) Kutney, J. P., Berset, J. D., Hewitt, G. M., and Singh, M. (1988) Biotransformation of dehydroabietic, abietic, and isopimaric acids by *Mortierella isabellina* immobilized in polyurethane foam. *Appl. Environ. Microbiol.* 54, 1015-1022.
- (41) Berset, D., and Pfander, H. (1986) 1,2-Epoxy-carotenoids. 6. Isolation of 1',2'-epoxy-1',2'-dihydro- ϵ,ψ -carotene from a 'delta mutant' tomato. *Helv. Chim. Acta* 69, 340-344.
- (42) Berset, D., and Pfander, H. (1985) Investigation of the carotenoid composition in the petals of a garden hybrid *Narcissus* cvv Golden Harvest. *Helv. Chim. Acta* 68, 1149-1154.
- (43) Berset, D., and Pfander, H. (1984) 1,2-Epoxy-carotenoids. 3. Isolation of 1,2-epoxy-1,2-dihydrolycopene from tomatoes. *Helv. Chim. Acta* 67, 964-967.