

ALFREDO CARLOS ALDER

Eawag, Swiss Federal Institute for Aquatic Science & Technology
CH-8600 Dübendorf, Switzerland

Tel +41 (0)58 765 5478
alfredo.alder@eawag.ch

Born February 19th, 1952 in São Paulo, Brazil; Swiss and Brazilian Citizen.

Education

University of Zurich, Department of Organic Chemistry, Zurich, Switzerland, PhD 1985

University of Zurich, Department of Microbiology, Zurich, Switzerland, MSc 1979

Professional Experience

| | |
|----------------|---|
| 2005 – to date | Senior Scientist & Group Leader, Department of Environmental Chemistry, Eawag, Dübendorf, Switzerland |
| 1990 – 2005 | Senior Scientist, Department of Chemical Pollutants, Eawag, Dübendorf, Switzerland |
| 1989 – 1990 | Visiting Associate, Department of Microbiology, New York University Medical Center, New York, NY, USA |
| 1986 – 1989 | Research Fellow, Department of Chemistry, Eawag, Dübendorf, Switzerland |
| 1980 – 1985 | Research and Teaching Assistant, Department of Organic Chemistry, University of Zurich, Zurich, Switzerland |

Research Interests

Fate of organic emerging contaminants in the urban water cycle, e.g. perfluorinated chemicals, biocides, pharmaceuticals, detergents

Sources, occurrence and transport of organic micropollutants in wastewater, in the aquatic environment and in processes of waste water treatment

Development of analytical techniques for organic environmental pollutants in wastewater, ambient water, sediment, and sewage sludge

Selected Projects

XENOPRUT (SNSF/SCOPES-Project: Xenobiotic Input to the River Prut, 2009-2012)

PHARMSOMES (SNSF/SDC Project: Environmental Exposure of Pharmaceuticals in the Somes Valley Watershed, Romania within the Swiss-Romanian program ESTROM Environmental Science and Technology in Romania, 2005-2007)

REXPO (Eawag Project: Realistic exposure scenarios for biocidal compounds in surface waters, 2006-2009)

ERAPharm (EU-Project Environmental Risk Assessment of Pharmaceuticals, 2004-2007)

POSEIDON (EU-Project Assessment of Technologies for the Removal of Pharmaceuticals and Personal Care Products in Sewage and Drinking Water Facilities to Improve the Indirect Potable Water Reuse, 2001-2003)

Publications

Scientific journals

- Alder AC, van der Voet J. (2015). Occurrence and point source characterization of perfluoroalkyl acids in sewage sludge. *Chemosphere* 129, 62-73.
- Rusu V, Postolachi L, Povar I, Alder AC, Lupascu T (2012). Dynamics of phosphorus forms in the bottom sediments and their interstitial water for the Prut River (Moldova). *Environmental Science and Pollution Research* 19, 3126-3131.
- Sun H, Zhang X, Wang L, Zhang T, Li F, He N, Alder AC (2012). Perfluoroalkyl compounds in municipal WWTPs in Tianjin, China — concentrations, distribution and mass flow. *Environmental Science and Pollution Research* 19, 1405-1415.
- Müller CE, Gerecke AC, Alder AC, Scheringer M, Hungerbühler K (2011). Identification of perfluoroalkyl acid sources in Swiss surface waters with the help of the artificial sweetener acesulfame. *Environmental Pollution* 159, 1419-1426.
- Sun H, Gerecke AC, Giger W, Alder AC (2011). Long-chain perfluorinated chemicals in digested sewage sludges in Switzerland. *Environmental Pollution* 159, 654-662.
- Singer H, Jaus S, Hanke I, Lück A, Hollender J, Alder AC (2010). Determination of biocides and pesticides by on-line solid phase extraction coupled with mass spectrometry and their behaviour in wastewater and surface water. *Environmental Pollution* 158, 3054-3064.
- Zhang T, Sun H, Gerecke AC, Kannan K, Müller CE, Alder AC (2010). Comparison of two extraction methods for the analysis of per- and polyfluorinated chemicals in digested sewage sludge. *Journal of Chromatography A*, 1217, 5026-5034.
- Alder AC, Schaffner C, Majewsky M, Klasmeier J, Fenner K (2010). Fate of beta-blocker human pharmaceuticals in surface water: Comparison of measured and simulated concentrations in the Glatt Valley Watershed, Switzerland. *Water Research* 44, 936-948.
- Kuester A, Alder AC, Escher B, Duis K, Fenner K, Garric J, Hutchinson TH, Lapen DR, Jensen J, Péry A, Römbke J, Snape J, Ternes T, Topp, E, Wehrhan A (2010). Environmental Risk Assessment of Human Pharmaceuticals in the European Union – A Case Study with the β -Blocker Atenolol. *Integrated Environmental Assessment and Management* 6, 514-523.
- Hoai PM, Ngoc NT, Minh NH, Viet PH, Berg M, Alder AC, Giger W (2010). Recent levels of organochlorine pesticides and polychlorinated biphenyls in sediments of the sewer system in Hanoi, Vietnam. *Environmental Pollution* 158, 913-920.
- Moldovan Z, Chira R, Alder AC (2009). Environmental exposure of pharmaceuticals and musk fragrances in the Somes River before and after upgrading the municipal wastewater treatment plant Cluj-Napoca, Romania. *Environmental Science and Pollution Research* 16 (Suppl 1), S46-S54
- Larsen TA, Alder AC, Eggen RIL, Maurer M, Lienert J (2009). Source separation: Will we see a paradigm shift in wastewater handling? *Environ Sci Technol* 43, 6121-6125.
- Duong HA, Pham NH, Nguyen HT, Hoang TT, Pham HV, Pham VC, Berg M, Giger W, Alder AC (2008). Occurrence, fate and antibiotic resistance of fluoroquinolone antibacterials in hospital wastewaters in Hanoi, Vietnam. *Chemosphere* 72, 968-973.
- Felis E, Alder AC, Surmacz-Gorska J, Miksch K (2008). Advanced oxidation of the polycyclic musk fragrances with using UV and UV/H₂O₂ processes. *Archives of Environmental Protection* 34, 13-23
- Winter MJ, Lillicrap AD, Caunter JE, Schaffner C, Alder AC, Ramil M, Ternes TA, Giltrow E, Sumpter JP, Hutchinson TH (2008). Defining the chronic impacts of atenolol on embryo-larval development and reproduction in the fathead minnow (*Pimephales promelas*). *Aquatic Toxicology* 86, 361-369.
- Moldovan Z, Schmutzer G, Tusa F, Calin R, Alder AC (2007). An overview of pharmaceuticals and personal care products contamination along the river Somes watershed, Romania. *Journal of Environmental Monitoring* 9, 986-993.
- Maurer M, Escher BI, Richle P, Schaffner C, Alder AC (2007). Elimination of beta-blockers in sewage treatment plants. *Water Research* 41, 1614-1622.

- Carballa M, Omil F, Alder AC, Lema JM (2006). Comparison between the conventional anaerobic digestion of sewage sludge and its combination with a chemical or thermal pre-treatment concerning the removal of pharmaceuticals and personal care products. *Water Science and Technology* 53, 109-117.
- Joss A, Keller E, Alder AC, Gobel A, McArdell CS, Ternes T, Siegrist H (2005). Removal of pharmaceuticals and fragrances in biological wastewater treatment. *Water Research* 39, 3139-3152
- Gobel A, Thomsen A, McArdell CS, Alder AC, Giger W, Theiss N, Löffler D, Ternes TA (2005). Extraction and determination of sulfonamides, macrolides, and trimethoprim in sewage sludge. *Journal of Chromatography A* 1085, 179-189.
- Ternes TA, Bonerz M, Herrmann N, Löffler D, Keller E, Lacida BB, Alder AC (2005). Determination of pharmaceuticals, iodinated contrast media and musk fragrances in sludge by LC/tandem MS and GC/MS. *Journal of Chromatography A* 1067, 213-223.
- Giger W, Alder AC, Golet EM, Kohler HPE, McArdell CS, Molnar E, Siegrist H, Suter MJF (2003). Occurrence and fate of antibiotics as trace contaminants in wastewaters, sewage sludges, and surface waters. *Chimia* 57, 485-491.
- Golet EM, Xifra I, Siegrist H, Alder AC, Giger W (2003). Environmental exposure assessment of fluoroquinolone antibacterial agents from sewage to soil. *Environmental Science and Technology* 37, 3243-3249.
- Golet EM, Strehler A, Alder AC, Giger W (2002). Determination of fluoroquinolone antibacterial agents in sewage sludge and sludge-treated soil using accelerated solvent extraction followed by solid-phase extraction. *Analytical Chemistry* 74, 5455-5462.
- Golet EM, Alder AC, Giger W (2002). Environmental exposure and risk assessment of fluoroquinolone antibacterial agents in wastewater and river water of the Glatt Valley Watershed, Switzerland. *Environmental Science and Technology* 36, 3645-3651.
- Haller MY, Muller SR, McArdell CS, Alder AC, Suter MJF (2002). Quantification of veterinary antibiotics (sulfonamides and trimethoprim) in animal manure by liquid chromatography-mass spectrometry. *Journal of Chromatography A* 952, 111-120.
- Larsen TA, Peters I, Alder A, Eggen R, Maurer M, Muncke J (2001). Re-engineering the toilet for sustainable wastewater management. *Environmental Science and Technology* 35, 192A-197A
- Golet EM, Alder AC, Hartmann A, Ternes TA, Giger W (2001). Trace determination of fluoroquinolone antibacterial agents in solid-phase extraction urban wastewater by and liquid chromatography with fluorescence detection. *Analytical Chemistry* 73, 3632-3638.
- Wegelin M, Canonica S, Alder AC, Marazuela D, Suter MJF, Bucheli TD, Haefliger OP, Zenobi R, McGuigan KG, Kelly MT, Ibrahim P, Larroque M (2001). Does sunlight change the material and content of polyethylene terephthalate (PET) bottles? *Journal of Water Supply: Research and Technology-Aqua* 50, 125-133.
- Hartmann A, Golet EM, Gartsler S, Alder AC, Koller T, Widmer RM (1999). Primary DNA damage but not mutagenicity correlates with ciprofloxacin concentrations in German hospital wastewaters. *Archives of Environmental Contamination and Toxicology* 36, 115-119
- Hartmann A, Alder AC, Koller T, Widmer RM (1998). Identification of fluoroquinolone antibiotics as the main source of umuC genotoxicity in native hospital wastewater. *Environmental Toxicology and Chemistry* 17, 377-382.
- Suter MJF, Alder AC, Berg M, McArdell CS, Riediker S, Giger W (1997). Determination of hydrophilic and amphiphilic organic pollutants in the aquatic environment. *Chimia* 51, 871-877
- Alder AC, Siegrist H, Fent K, Egli T, Molnar E, Poiger T, Schaffner C, Giger W (1997). The fate of organic pollutants in wastewater and sludge treatment: Significant processes and impact of compound properties. *Chimia* 51, 922-928.
- Fernandez P, Alder AC, Suter MJF, Giger W (1996). Determination of the quaternary ammonium surfactant ditallowdimethylammonium in digested sludges and marine sediments by supercritical fluid extraction and liquid chromatography with postcolumn ion-pair formation. *Analytical Chemistry* 68, 921-929.

- Alder AC, Haggblom MM, Oppenheimer SR, Young LY (1993). Reductive Dechlorination of Polychlorinated-Biphenyls in Anaerobic Sediments. *Environmental Science and Technology* 27, 530-538.
- Alder AC, Siegrist H, Gujer W, Giger W (1990). Behavior of NTA and EDTA in Biological Waste-Water Treatment. *Water Research* 24, 733-742.
- Alder AC, Ruedi P, Prewo R, Bieri JH, Eugster CH (1986). Novel diterpenoids from leaf-glands of a *Plectranthus* Sp from Rwanda. *Helvetica Chimica Acta* 69, 1395-1417.
- Alder AC, Ruedi P, Eugster CH (1984). Polar Diterpenoids from leaf-glands of *Plectranthus-Argentatus* Blake, S.T. *Helvetica Chimica Acta* 67, 1523-1530.
- Alder AC, Ruedi P, Eugster CH (1984). Red-colored Abietanoids from leaf-glands of *Plectranthus-Strigosus* Benth. *Helvetica Chimica Acta* 67, 1531-1534.
- Alder AC, Ruedi P, Eugster CH (1984). Plectranthon-A, Plectranthon-B, Plectranthon-C, and Plectranthon-D - Diterpenoid Phenanthrene-1,4-diones from leaf-glands of a *Plectranthus*-Sp (Labiatae). *Helvetica Chimica Acta*. 67, 1003-1011.

Book chapters

- Metcalfe CD, Alder AC, Halling-Sørensen B, Krogh K, Fenner K, Larsbo M, Straub JO, Ternes TA, Topp E, Lapen DR, Boxall ABA (2008). Exposure assessment methods for veterinary and human use medicines in the environment: PEC vs MEC comparisons. In *Pharmaceuticals in the Environment: Sources, Fate, Effects and Risks*, Kümmerer K (Ed.), 3rd Edition. Springer-Verlag, Berlin Heidelberg, pp. 147-171
- Alder AC, Bruchet A, Carballa M, Clara M, Joss A, Löffler D, McArdell CS, Miksch K, Omil F, Tuhkanen T, Ternes TA (2006). Consumption and Occurrence. In *Human Pharmaceuticals, Hormones and Fragrances: The challenge of micropollutants in urban water management*, Ternes TA, Joss A (Eds.). IWA Publishing, London, UK, pp. 15-54
- McArdell CS, Alder AC, Göbel A, Löffler D, Suter MJ-F, Ternes TA (2006). Analytical Methods. In *Human Pharmaceuticals, Hormones and Fragrances: The challenge of micropollutants in urban water management*, Ternes TA, Joss A (Eds.). IWA Publishing London, UK, pp. 55-105
- Versteeg DJ, Alder AC, Cunningham VL, Kolpin DW, Murray-Smith R, Ternes T (2005). Environmental exposure modeling and monitoring of human pharmaceutical concentrations in the environment. In *Human Pharmaceuticals: Assessing the Impacts on Aquatic Ecosystems*, Williams RT (Ed.). Society of Environmental Toxicology and Chemistry (SETAC), pp. 71-110
- Alder AC, McArdell CS, Golet EM, Kohler H-PE, Molnar E, Pham Thi NA, Siegrist H, Suter MJF, Giger W (2004). Environmental exposure of antibiotics in wastewaters, sewage sludges and surface waters. In *Pharmaceuticals in the environment - Sources, fate, effects and risks*, Kümmerer K (Editor). Springer, Berlin, Heidelberg, New York, pp. 55-66
- Alder AC, McArdell CS, Golet EM, Ibrić S, Molnar E, Nipales NS, Giger W (2001). Occurrence and Fate of Fluoroquinolone, Macrolide, and Sulfonamide Antibiotics during Wastewater Treatment and in Ambient Waters in Switzerland. In *Pharmaceuticals and Personal Care Products in the Environment: Scientific and Regulatory Issues*, Daughton CG, Jones-Lepp T (Eds.). Symposium Series 791, Chapter 3, American Chemical Society. Washington, DC, pp. 56-69