

RÉSUMÉ

Anna Szmigielski

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EDUCATION

- M.S. in Chemistry, Jagiellonian University, Cracow (Poland),
- Ph.D. in Food Chemistry, University of Georgia, Athens, GA (USA).

EXPERTISE

- analytical methods and equipment especially gas chromatography (GC) and high pressure liquid chromatography (HPLC) on analytical and preparative scale,
- sample preparation of plant tissue, food products and soils for analysis using solvent and solid phase extractions,
- development of new chromatographic procedures and derivatizations,
- separation of individual compounds for chromatographic standards,
- development of plant bioassays for detection of herbicides in soil,
- testing phytotoxicity and persistence of herbicides in soil using bioassays,
- conducting growth chamber and field experiments,
- maintaining analytical equipment and lab supplies for routine operation.

TEACHING EXPERIENCE

- General Chemistry,
- Organic Chemistry,
- Food Chemistry,
- Soil Science Instrumental Techniques.

WORK HISTORY

2004-present: *University of Saskatchewan, Dept. of Chemistry; sessional lecturer.*

1993-present: *University of Saskatchewan, Dept. of Soil Science; research scientist.*

- Developed bioassays for detection of herbicides in soil using different plant species. Investigated herbicide phytotoxicity and dissipation in soil under laboratory and field conditions. Applied bioassays to study herbicide behavior as related to soil properties.
- Worked on comparison of HPLC determination of herbicides in soil with the bioassay techniques. Used solvent and solid phase extractions for sample preparation.
- Proposed one-step extraction of glucosinolates from canola and mustard seeds with anion exchange membranes for HPLC analysis of high- and low-glucosinolate varieties of canola and mustard.
- Analyzed medicinal plants (calendula, feverfew and milk thistle) for flavonoid content using HPLC.
- Collected and analyzed root exudates and rhizosphere soil for organic acids by GC and HPLC. Investigated relationship between root exudates and cadmium uptake by durum wheat and flax plants. Studied organic acid content in root and shoot tissue of durum wheat.

1984-1988: *University of Georgia, Dept. of Food Science; post-doctoral fellow.*

- Developed new methylation and pentafluorobenzoylation derivatizations for the GC determination of capsaicinoids in Capsicum fruits, oleoresins and spices. Isolated pure capsaicinoid standards by preparative HPLC and LPLC. Used UV, IR and MS for structure confirmation of the derivatized compounds. Prepared samples for analysis using Soxhlet extractions.

1978-1984: *University of Georgia, Dept. of Food Science; graduate teaching assistant.*

- Performed GC analysis for flavor profiles of variety of food products. Was responsible for analytical equipment and lab supplies. Assisted and taught laboratory classes in food chemistry and food processing.

1974-1978: *Academy of Agriculture, Institute of Chemistry and Food Technology, Cracow (Poland); laboratory technician.* Assisted faculty members in conducting research on pesticide residues in food products using GC methods.

Summer jobs in 1971 and 1970: *Institute for Environmental Research, Debrecen (Hungary); laboratory technician.* Performed chemical analysis of water samples.

PUBLICATIONS

A.M. Szmigielski, E.N. Johnson, J.J. Schoenau. **2013**. A bioassay evaluation of pyrooxasulfone behavior in prairie soils. *Submitted to J. Pest. Sci.*

A.M. Szmigielski, J.J. Schoenau, E.N. Johnson, F.A. Holm and K.L. Sapsford. **2012**. Determination of thien carbazonone in soil by oriental mustard root length bioassay. *Weed Sci.* 60:468-473.

A.M. Szmigielski, J.J. Schoenau, E.N. Johnson, F.A. Holm, K.L. Sapsford and J. Liu. **2012**. Effects of soil factors on phytotoxicity and dissipation of sulfentrazone in Canadian prairie soils. *Commun. Soil Sci. Plant Anal.* 43:896-904.

A.M. Szmigielski, J.J. Schoenau and E.N. Johnson. **2012**. Use of sugar beet as a bioindicator plant for detection of flucarbazone and sulfentrazone herbicides in soil. In the book "[Herbicides - Environmental Impact Studies and Management Approaches](#)" edited by Ruben Alvarez-Fernandez, ISBN 978-953-307-892-2, InTech. Available from: <http://www.intechopen.com/books/herbicides-environmental-impact-studies-and-management-approaches>.

A.M. Szmigielski, B.G.L. Geisel, F.A. Holm, E.N. Johnson and J.J. Schoenau. **2011**. Application of a laboratory bioassay for assessment of bioactivity of ALS-inhibiting herbicides in soil. In the book "[Herbicides and Environment](#)" edited by Andreas Kortekamp, ISBN 978-953-307-476-4, InTech. Available from: <http://www.intechopen.com/books/herbicides-and-environment>.

A.M. Szmigielski, J.J. Schoenau, E.N. Johnson, F.A. Holm, K.L. Sapsford and J. Liu. **2009**. Development of a laboratory bioassay and effect of soil properties on sulfentrazone phytotoxicity in soil. *Weed Technol.* 23:486-491.

A.M. Szmigielski, J.J. Schoenau, A. Irvine and B. Schilling. **2008**. Evaluating a mustard root-length bioassay for predicting crop injury from soil residual flucarbazone. *Commun. Soil Sci. Plant Anal.* 39:413-420.

R. Eliason, J.J. Schoenau, A.M. Szmigielski and W.M. Lavery. **2004**. Phytotoxicity and persistence of flucarbazone-sodium in soil. *Weed Sci.* 52:857-862.

A.M. Szmigielska, K.C.J. Van Rees and G. Cieslinski. **2002**. Gas chromatographic analysis of low molecular weight organic acids in roots and shoots of durum wheat plants. *Commun. Soil Sci. Plant Anal.* 33:1415-1423.

A.M. Szmigielska and J.J. Schoenau. **2000**. Use of anion-exchange membrane extraction for the high performance liquid chromatographic analysis of mustard seed glucosinolates. *J. Agric. Food Chem.* 48:5190-5194.

A.M. Szmigielska, J.J. Schoenau and V. Levers. **2000**. Determination of glucosinolates in canola seeds using anion exchange membrane extraction combined with the HPLC detection. *J. Agric. Food Chem.* 48:4487-4491.

A.M. Szmigielska and J.J. Schoenau, **1999**. Analysis of imazethapyr in agricultural soils by ion exchange membranes and a canola bioassay. *Commun. Soil Sci. Plant Anal.* 30:1831-1846.

A.M. Szmigielska, J.J. Schoenau and K. Greer, **1998**. Comparison of chemical extraction and bioassay for measurement of metsulfuron in soil. *Weed Sci.* 46:487-493.

G. Cieslinski, K.C.J. Van Rees, A.M. Szmigielska, G.S.R. Krishnamurti and P.M. Huang, **1998**. Low molecular weight organic acids in rhizosphere soils of durum wheat and their effect on cadmium bioaccumulation. *Plant Soil.* 203:109-117.

A.M. Szmigielska, K.C.J. Van Rees, G. Cieslinski and P.M. Huang, **1997**. Comparison of liquid and gas chromatography for analysis of low molecular weight organic acids in rhizosphere soil. *Commun. Soil Sci. Plant Anal.* 28:99-111.

G. Cieslinski, K.C.J. Van Rees, A.M. Szmigielska and P.M. Huang, **1997**. Low molecular weight organic acids released from roots of durum wheat and flax into sterile nutrient solutions. *J. Plant Nutr.* 20:753-764.

A.M. Szmigielska, K.C.J. Van Rees, G. Cieslinski and P.M. Huang, **1996**. Low molecular weight dicarboxylic acids in rhizosphere soil of durum wheat. *J. Agric. Food Chem.* 44:1036-1040.

A.M. Szmigielska, K.C.J. Van Rees, G. Cieslinski, P.M. Huang and D.R. Knott. **1995**. Determination of low molecular weight dicarboxylic acids in root exudates by gas chromatography. *J. Agric. Food Chem.* 43:956-959.

A.M. Szmigielska and J.J. Schoenau, **1995**. Determination of 2,4-D amine in soils using anion exchange membranes. *J. Agric. Food Chem.* 43:151-156.

A.M. Krajewska and J.J. Powers, **1988**. Sensory properties of naturally occurring capsaicinoids. *J. Food Sci.* 53:902-905.

A.M. Krajewska and J.J. Powers, **1988**. Pentafluorobenzoylation of capsaicinoids for gas chromatography with electron capture detection. *J. Chromatogr.* 457:279-286.

A. M. Krajewska and J.J. Powers, **1987**. Gas chromatography of methyl derivatives of naturally occurring capsaicinoids. *J. Chromatogr.* 409:223-233.

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A.M. Krajewska and J.J. Powers, **1986**. Isolation of naturally occurring capsaicinoids by reversed phase low pressure liquid chromatography. *J. Chromatogr.* 367:267-270.

A. Erndt, J. Sepiol, G. Pyrc and A.M. Krajewska, **1979**. Photo-Fries rearrangement of salicylonitrile benzoate. *Pol. J. Chem.* 53:533-536.

A. Erndt, K. Gosik, A.M. Krajewska and T. Scibor, **1978**. Gas liquid chromatographic determination of caffeine in cola beverages. *Chem. Anal.* 23:811-814.