

# RENÉ SAHBA SHAHMOHAMADLOO

Guelph, ON (519) 836-6376 rshahmoh@uoguelph.ca www.renesahba.com

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## HIGHLIGHTS OF QUALIFICATIONS

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- 5 years of experience evaluating the fate and effects of chemicals in the environment (or ecological risk assessments) through collaborative work with stakeholders including government, non-governmental organizations, municipalities, industry, universities, and associations
- Successfully completed a Master of Science in Ecotoxicology and is currently completing a Doctor of Philosophy in Ecotoxicology
- A skilled scientist who is trained to be a critical thinker; be unbiased in research; design and coordinate scientifically-sound experiments; synthesize, analyze, and summarize information for dissemination to various audiences as evidenced by graduate research work
- A skilled teacher who is committed to being respectful of diversity; generating enthusiasm in students; help students complete projects within tight deadlines; provide constructive criticism on students' scientific writing style; encourage students to be critical thinkers
- Effective communicator who publishes in refereed scientific journals; is awarded for research ideas and novelty; is recognized for public speaking (best presenter award in a national conference)

## EDUCATION

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**Doctor of Philosophy (Ph.D.) Candidate: Aquatic Toxicology and Food Security** Sep 2016 – Present  
*University of Guelph, School of Environmental Sciences* Guelph, ON

Thesis: Microcystins in the Great Lakes: Mechanisms of toxicity and risks from consumption of fish  
Advisor: Dr. Paul K. Sibley

**Master of Science (M.Sc.), Environmental Toxicology** May 2016  
*University of Guelph, School of Environmental Sciences* Guelph, ON

Thesis: Evaluating the effects of triclosan on field crops and arbuscular mycorrhizal fungi in biosolids-amended soil  
Advisor: Dr. Paul K. Sibley

**Bachelor of Science (B.Sc.), Toxicology** Dec 2014  
*University of Guelph, College of Physical and Engineering Sciences* Guelph, ON

Thesis: Evaluation of antimicrobials in major agricultural products following land application of municipal biosolids  
Advisor: Dr. Paul K. Sibley

## PROFESSIONAL EXPERIENCE

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**Graduate Researcher (Ph.D.)** Sep 2016 – Present  
*Aquatic Toxicology Unit, Ministry of the Environment* Toronto, ON

- Circumvent over \$100,000 cost to purchase analytical standards through the development of a method for producing cyanobacterial toxins
- Test the fate and effect of chemicals in the environment by designing and coordinating large-scale experiments investigating the uptake and depuration kinetics of cyanobacterial toxins in 3 fish species relevant to Lake Erie, providing evidence as to whether humans are at risk from fish consumption
- Collect, synthesize, analyze, manage, and report environmental data, such as toxin measurements, dose-response relationships, proteomics, lethality, and reproduction effects in exposed aquatic (in)vertebrates

- Analyze data to determine validity, quality, and scientific significance and to interpret correlations between the effects of chemicals and adverse effects in aquatic (in)vertebrates
- Collaborate with experts across multiple disciplines from provincial (Ministry of the Environment) and academic research institutions (Guelph, Ontario Institute of Technology, Toronto) to conduct robust experiments on the fate and effect on chemicals in the environment; results are published in refereed scientific journals
- Provide scientific guidance, support, and coordination to management within the Ministry of the Environment and the Ontario Federation of Anglers and Hunters regarding the potential for cyanobacterial toxins to threaten the health of fish
- Communicate scientific information to the public, organizations, and internal audiences through oral briefings, written documents, workshops, conferences, and training sessions
- Supervise and mentor one graduate researcher and two undergraduate researchers
- Awarded over \$35,000 in research funding in recognition of demonstrating a novel approach to understanding the mechanisms of toxicity from cyanobacterial toxins in fish relevant to the Great Lakes

**Graduate Teaching Assistant (Project in Environmental Sciences)**

Sep 2017 – May 2019

*School of Environmental Sciences, University of Guelph*

Guelph, ON

- Guide over 150 fourth-year undergraduate students step-by-step on how to approach an environmental problem presented by an external client, and to come-up with science-based solutions for the clients within tight deadlines
- Provide students with constructive criticism on their scientific writing style while encouraging them to be critical thinkers
- Grade student assignments, such as proposals, poster presentations, and final reports.
- Develop teaching materials, such as rubrics
- Troubleshoot challenges within student groups by implementing a plan of action that respects their diversity of circumstances while increasing their success in the course

**Graduate Teaching Assistant (Pesticides and the Environment)**

Sep 2016 – Dec 2016

*School of Environmental Sciences, University of Guelph*

Guelph, ON

- Helped over 100 students understand the role and use of pesticides by various facets of society and the effect of these pesticides on biological activities in the environment

**Research Technician**

May 2016 – Aug 2016

*School of Environmental Sciences, University of Guelph*

Guelph, ON

- Managed laboratory functions including organization, extraction, and identification of field samples needed for 2 M.Sc. thesis projects

**Graduate Researcher (M.Sc.)**

Jan 2014 – May 2016

*School of Environmental Sciences, University of Guelph*

Guelph, ON

- Designed original experiments to assess the risk of an antimicrobial chemical (triclosan) to adversely affect 3 cash crops grown in 4 types of municipal biosolids, amended with soil
- Engaged in collaborative work with stakeholders from government (Ministry of the Environment), non-governmental organizations (Canadian Water Network), municipalities (Calgary, Halton Hills, Toronto), industry (Lystek), universities (Guelph, Ryerson, Toronto, Trent), and associations (Ontario Soil and Crop Improvement Association) to investigate the risk of chemical exposure from biosolids to crops
- Managed laboratory functions including setup, takedown, extraction, and identification of triclosan in vector
- Synthesized, analyzed, and summarized scientific information in the form of oral briefings, refereed scientific journal publications, written documents, press articles, and conferences, making it accessible and understandable to key stakeholders and the general public

- Recognized for novelty in research through an award from the Ontario Soil and Crop Improvement Association and being named Highly Qualified Personnel for contribution to biosolids in a report released by the Canadian Water Network

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## TEACHING EXPERIENCE

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**Graduate Teaching Assistant (Project in Environmental Sciences)** Sep 2017 – May 2019  
*School of Environmental Sciences, University of Guelph* Guelph, ON

- Guide over 150 fourth-year undergraduate students step-by-step on how to approach an environmental problem presented by an external client, and to come-up with science-based solutions for the clients within tight deadlines
- Provide students with constructive criticism on their scientific writing style while encouraging them to be critical thinkers
- Grade student assignments, such as proposals, poster presentations, and final reports
- Develop teaching materials, such as rubrics
- Troubleshoot challenges within student groups by implementing a plan of action that respects their diversity of circumstances while increasing their success in the course

**Graduate Teaching Assistant (Pesticides and the Environment)** Sep 2016 – Dec 2016  
*School of Environmental Sciences, University of Guelph* Guelph, ON

- Helped over 100 third-year undergraduate students understand the role and use of pesticides by various facets of society and the effect of these pesticides on biological activities in the environment

**Guest Teacher** Nov 2015 – Jun 2016  
*Westwood Public School, Upper Grand District School Board* Guelph, ON

- Introduced Ontario’s second public elementary school to the Junior Youth Spiritual Empowerment Program as a classroom subject
- Mentored 50 seventh and eighth grade students to be critical thinkers; enthusiastic for service to the community; capable of making statements about reality around them through speech and writing; help each other to succeed by fostering an environment of mutual support and trust; illustrate their understanding on a subject through creative means (e.g. drama, visual, and music)

**Guest Teacher** Sep 2013 – Jun 2015  
*Gateway Drive Public School, Upper Grand District School Board* Guelph, ON

- Introduced Ontario’s first public elementary school to the Junior Youth Spiritual Empowerment Program as a classroom subject
- Mentored 53 seventh and eighth grade students to be critical thinkers; enthusiastic for service to the community; capable of making statements about reality around them through speech and writing; help each other to succeed by fostering an environment of mutual support and trust; illustrate their understanding on a subject through creative means (e.g. drama, visual, and music)

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## VOLUNTEER EXPERIENCE

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**Member of Undergraduate Curriculum Committee** Sep 2018 – Present  
*School of Environmental Sciences, University of Guelph* Guelph, ON

- Review, revise, and approve course curriculum proposed by faculty members

**Member of Organizing Committee** Sep 2017 – Present  
*Interdisciplinary Freshwater Harmful Algal Blooms Workshop* Toronto, ON

- Organize an annual three-day workshop on harmful algal blooms research that attracts 50 to 100 scientists and researchers from across the world
- Create, design, and maintain website for the Workshop ([www.ifhabworkshop.com](http://www.ifhabworkshop.com))

**Member of Communications and Outreach Committee**

Sep 2016 – Present

*School of Environmental Sciences, University of Guelph*

Guelph, ON

- Demonstrate strong written communication skills through the promotion of the department’s innovative work using social media channels
- Organize an annual symposium on sustainability that attracts 50 to 100 people from the public
- Coordinate special topics lectures for the department led by experts from within and outside the university

**Member of Search Committee for Assistant Professorship**

May 2017 – Jun 2018

*School of Environmental Sciences, University of Guelph*

Guelph, ON

- Selected and hired top candidate for a tenure track professorship in the department after an intensive process of interviewing 3 candidates and screening over 50 applications
- Trained to avoid bias in the screening process by attending human rights and diversity workshop

**Mentor and Trainer**

Sep 2007 – Sep 2016

*Junior Youth Spiritual Empowerment Program*

Guelph, ON

- Mentored and trained over 20 youth (ages 18 – 30) to assist over 100 early adolescents (ages 12 – 15) study a series of educational materials offered by the International Bahá’í Community that will provide them with the elements of a conceptual framework that will guide their choices and actions as they mature into adults

**GRANTS**

**Rockefeller Foundation’s 2050 Food System Vision Prize (Semi-Finalist)**

Dec 2019 – Present

Amount: \$200,000 USD

New York City, NY

Proposal: *Envisioning a food system based on truly integrative agricultural practices for 2050*

- Out of over 1,300 submissions from 199 countries we were selected as one of the top 76 Semi-Finalists in The Food System Vision Prize, a \$2 million global prize funded by The Rockefeller Foundation.
- Partnered with the City of Guelph, Ecological Farmers Association of Ontario (EFAO), Alternative Land Use Services (ALUS) Canada, Arrell Food Institute (University of Guelph), and the Ontario Soil and Crop Improvement Association (OSCIA) to develop a framework outlining a set of practices that will maximize food production and minimize environmental footprints
- Invited to attend global event Reimagining Food Systems: Driving Action for a Post-COVID World, hosted by the Eat Forum and the Rockefeller Foundation Event. Our proposal was highlighted 3 times during the event.

**Ontario Federation of Anglers and Hunters’ Fisheries Research Grant**

Mar 2018

Amount: \$4,000 CAD

Peterborough, ON

- Successfully awarded \$4,000 research grant to support Ph.D. research on fish and wildlife topics that helped to improve Ontario’s resource management

**AWARDS AND HONOURS**

Research Scholarship (\$2,000), IAGLR	2020
Ontario Graduate Scholarship (\$15,000), University of Guelph	2019
Student Travel Award (\$500), SETAC North America	2018

Ontario Graduate Scholarship (\$15,000), University of Guelph	2018
NSERC CREATE Tri-Council Scholarship (\$3,000 /2 years), University of Guelph	2017
NSERC CREATE Scholarship (\$21,000 /2 years), University of Guelph	2017
University Graduate Scholarship (\$3,000 /3 years), University of Guelph	2016
Graduate Excellence Entrance Scholarship (\$30,000 /1 year), University of Guelph	2016
Best Presenter Award (\$500), SETAC North America	2016
Student Travel Award (\$500), SETAC North America	2016
Dean's Scholarship (\$500), University of Guelph	2015
Research Scholarship (\$1,000), Ontario Soil and Crop Improvement Association	2014
André Auger Citizenship Award, University of Guelph	2013
Film Contest Winner, Tony Blair Institute for Global Change	2011

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## PROFESSIONAL DEVELOPMENT

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**Graduate Research and Project Management (Certificate course)** Jan 2019 – May 2019  
*The Office of Research, University of Guelph* Guelph, ON

- Learned the management of scholarly and research projects, including administrative and ethical concerns from several disciplines

**University Teaching: Theory and Practice (Credit course)** Sep 2018 – Dec 2018  
*The Office of Open Learning and Educational Support, University of Guelph* Guelph, ON

- Critically examined and learned issues and research in higher education
- Engaged in intensive, interdisciplinary discussions about topics including learning outcomes, assessment, active learning, course design, and the context of teaching in higher education
- Practiced teaching, developed the skills of reflective practice, and provided feedback on teaching

**Diversity and Human Rights Faculty Recruitment (Workshop)** Nov 2017  
*The Office of Diversity and Human Rights, University of Guelph* Guelph, ON

- Contextualized the goals of employment equity
- Defined implicit bias and potential impacts on recruitment and hiring process
- Identified strategies to minimize implicit bias from impacting decision-making and interpersonal interactions within the search committee

**Laboratory Technician Training** Feb 2017 – Oct 2017  
*Aquatic Toxicology Unit, Ministry of the Environment* Toronto, ON

- Trained in several biological test methods, such as the rainbow trout acute lethality test (EPS1/RM/9), hexagenia spp. survival and growth in sediment (MECP E3444), and daphnia spp. reproduction and survival test (EPS1/RM/21)
- Trained in several standard operating procedures related to measuring chemical parameters
- Trained in WHMIS health and safety protocols when working in a Ministry laboratory

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## PUBLICATIONS

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1. Tabatabaei Anaraki M, **Shahmohamadloo RS**, Sibley PK, MacPherson KA, Bhavsar SP, Simpson AJ, Ortiz Almirall X. 2020. Optimization of an MMPB Lemieux Oxidation method for the quantitative analysis of microcystins in fish tissue by LC-QTOF MS. *Sci Total Environ*. doi.org/10.1016/j.scitotenv.2020.140209
2. **Shahmohamadloo RS**, Simmons DBD, Sibley PK. 2020. Shotgun proteomics analysis reveals sub-lethal effects in *Daphnia magna* exposed to cell-bound microcystins produced by *Microcystis aeruginosa*. *Comp. Biochem. Phys. D*. doi.org/10.1016/j.cbd.2020.100656

3. **Shahmohamadloo RS**, Ortiz Almirall X, Bhavsar S, Poirier DG, Sibley PK. 2020. Assessing the toxicity of cell-bound microcystins on freshwater pelagic and benthic invertebrates. *Ecotox. Environ. Safe.* doi.org/10.1016/j.ecoenv.2019.109945
4. **Shahmohamadloo RS**, Ortiz Almirall X, Holeton C, Bhavsar S, Poirier DG, Sibley PK. 2019. Adopting a culture technique to produce and sustain high concentrations of microcystins by *Microcystis aeruginosa* in laboratory. *MethodsX.* doi.org/10.1016/j.mex.2019.10.024
5. Gene SM, **Shahmohamadloo RS**, Ortiz X, Prosser RS. 2019. Effect of *Microcystis aeruginosa*-associated microcystin-LR on the survival of 2 life stages of freshwater mussel (*Lampsilis siliquoidea*). *Environ. Toxicol. Chem.* doi.org/10.1002/etc.4527
6. **Shahmohamadloo RS**, Lissemore L, Prosser RS, Sibley PK. 2017. Comparative evaluation of four biosolids formulations on the effects of triclosan on plant-arbuscular mycorrhizal fungal interactions in three crop species. *Sci. Total Environ.* doi.org/10.1016/j.scitotenv.2017.01.067
7. **Shahmohamadloo RS**, Lissemore L, Prosser RS, Sibley PK. 2016. Evaluating the effects of triclosan on three field crops grown in four formulations of biosolids. *Environ. Toxicol. Chem.* doi.org/10.1002/etc.3712
8. Prosser RS, Lissemore L, **Shahmohamadloo RS**, Sibley PK. 2015. Effect of biosolids-derived triclosan and triclocarban on the colonization of plant roots by arbuscular mycorrhizal fungi. *Sci Total Environ.* doi.org/10.1016/j.scitotenv.2014.12.014

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#### CONFERENCE PRESENTATIONS

1. Reimagining Food Systems: Driving Action for a Post-COVID World. 2020. Eat Forum and Rockefeller Foundation Event, virtual platform. **Invited to attend as Semi-Finalist in 2050 Food System Vision Prize.** Our proposal was highlighted 3 times during the event.
2. **Shahmohamadloo RS**, Simmons DBD, Sibley PK. 2020. Shotgun proteomics analysis reveals sub-lethal effects in *Daphnia magna* exposed to cell-bound microcystins produced by *Microcystis aeruginosa*. Poster presentation. International Association for Great Lakes Research Conference, virtual platform.
3. Knight A, Ortiz X, Bhavsar S, **Shahmohamadloo RS**, Sibley PK. 2020. Transgenerational development of microcystin toxin tolerance in *Daphnia magna*. Platform presentation. International Association for Great Lakes Research Conference, virtual platform.
4. Sibley PK, **Shahmohamadloo RS**. 2020. Building Resiliency in Agricultural Landscapes: A Conceptual Framework Focused on Risk Management. Poster presentation. Society of Environmental Toxicology and Chemistry Europe 28<sup>th</sup> Annual Meeting, Dublin, Leinster, Ireland.
5. Gene SM, **Shahmohamadloo RS**, Ortiz X, Prosser RS. 2019. Effect of *Microcystis aeruginosa*-associated microcystin-LR on the survival of 2 life stages of freshwater mussel (*Lampsilis siliquoidea*). Platform presentation. Canadian Freshwater Mollusc Research Meeting, Burlington, ON, Canada.
6. **Shahmohamadloo RS**, Ortiz X, Simmons D, Bhavsar S, Sibley P. 2019. Assessing the differences in uptake and depuration potential of intra- and extracellular microcystins in *Salvelinus namaycush* and *Oncorhynchus mykiss*. Poster presentation. Society of Environmental Toxicology and Chemistry North America 40<sup>th</sup> Annual Meeting, Toronto, ON, Canada.

7. **Shahmohamadloo RS**, Ortiz X, Holeton C, Bhavsar S, Poirier D, Sibley P. 2019. An efficient and affordable laboratory method to produce and sustain high concentrations of microcystins by *Microcystis aeruginosa*. Poster presentation. Society of Environmental Toxicology and Chemistry North America 40<sup>th</sup> Annual Meeting, Toronto, ON, Canada.
8. **Shahmohamadloo RS**, Poirier DG, Ortiz X, Simmons D, Stevack K, Bhavsar S, Sibley P. 2019. *Microcystis aeruginosa* adversely impacts *Daphnia* spp.: Posing risks to food webs of the Great Lakes. Poster presentation. Interdisciplinary Freshwater Harmful Algal Blooms Workshop 3<sup>rd</sup> Annual Meeting, Toronto, ON, Canada.
9. **Shahmohamadloo RS**, Poirier DG, Ortiz X, Simmons D, Stevack K, Bhavsar S, Sibley P. 2018. *Microcystis aeruginosa* adversely impacts *Daphnia* spp.: Posing risks to food webs of the Great Lakes. Poster presentation. Society of Environmental Toxicology and Chemistry North America 39<sup>th</sup> Annual Meeting, Sacramento, CA, United States.
10. **Shahmohamadloo RS**, Poirier DG, Ortiz X, Holeton C, Bhavsar S, Sibley P. 2018. *Microcystis aeruginosa* adversely impacts aquatic biota: Posing risks to users of the Great Lakes. Platform presentation. Ontario Federation of Anglers and Hunters, Fisheries Advisory Committee Meeting, Peterborough, ON, Canada.
11. **Shahmohamadloo RS**, Poirier DG, Ortiz X, Simmons D, Stevack K, Bhavsar S, Sibley P. 2018. *Microcystis aeruginosa* adversely impacts *Daphnia* spp.: Posing risks to food webs of the Great Lakes. Platform presentation. International Association for Great Lakes Research Conference, Toronto, ON, Canada.
12. Karakolis EG, Nguyen B, Ortiz X, **Shahmohamadloo RS**, Sibley P, Sinton D. 2018. Microplastics can adsorb microcystins. Platform presentation. Interdisciplinary Freshwater Harmful Algal Blooms Workshop 2<sup>nd</sup> Annual Meeting, Toronto, ON, Canada.
13. Simmons D, **Shahmohamadloo RS**, Tabatabaei Anaraki M, Chong-Kit R, Poirier D, Ortiz X, Jobst K, Reiner E, Simpson A, Simpson M. 2017. Proteome responses of microcystin-exposed *Daphnia magna*. Platform presentation. Interdisciplinary Freshwater Harmful Algal Blooms Workshop 2<sup>nd</sup> Annual Meeting, Toronto, ON, Canada.
14. **Shahmohamadloo RS**. 2017. The accumulation and toxicology of microcystins in Great Lakes species. Scholarly address. Rochman-Sinton Collaborative Lab Meeting, University of Toronto, Toronto, ON, Canada.
15. Simmons D, **Shahmohamadloo RS**, Tabatabaei Anaraki M, Chong-Kit R, Poirier DG, Ortiz X, Jobst K, Reiner E, Simpson A, Simpson M. 2017. Proteome responses of microcystin-exposed *Daphnia magna*. Platform presentation. Canadian Ecotoxicity Workshop, Guelph, ON, Canada.
16. **Shahmohamadloo RS**. 2017. A resourceful approach to managing sewage sludge: An effects-based look at the micro-constituents in land-applied biosolids. Platform presentation. FarmSmart Conference: Municipal Biosolids Beneficial Use Education Day, Milton, ON, Canada.
17. **Shahmohamadloo RS**. 2016. Evaluating the effects of triclosan on field crops and arbuscular mycorrhizal fungi in biosolids-amended soil. Platform presentation. Water Environment Association of Ontario Annual Residuals and Biosolids Conference, Calgary, AB, Canada.
18. **Shahmohamadloo RS**. 2015. Evaluating the effects of triclosan on field crops and arbuscular mycorrhizal fungi in biosolids-amended soil. Platform presentation. Water Environment Association of Ontario Annual Residuals and Biosolids Seminar, Toronto, ON, Canada.

19. **Shahmohamadloo RS.** 2015. Evaluating the effects of triclosan on field crops and arbuscular mycorrhizal fungi in biosolids-amended soil. Platform presentation. Society of Environmental Toxicology and Chemistry North America 36<sup>th</sup> Annual Meeting, Salt Lake City, UT, United States.
20. **Shahmohamadloo RS.** 2014. Evaluating the effects of triclosan on field crops and arbuscular mycorrhizal fungi in biosolids-amended soil. Platform presentation. Canadian Ecotoxicity Workshop 41<sup>st</sup> Annual Meeting, Ottawa, ON, Canada.

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## MEDIA

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1. **University of Guelph News.** U of G Future Food Vision a Semi-Finalist for International Prize. <https://news.uoguelph.ca/2020/06/u-of-g-future-food-vision-a-semi-finalist-for-international-prize/>
2. **One Health Institute, University of Guelph.** Feature Research Story — Meet René Sahba Shahmohamadloo. <https://onehealth.uoguelph.ca/feature-research-stories/>
3. **School of Environmental Sciences, University of Guelph.** New research shows invertebrates can be harmed by cyanobacteria. <https://www.uoguelph.ca/ses/news/2020/01/new-research-shows-invertebrates-can-be-harmed-cyanobacteria>
4. **Council of Ontario Universities.** Research Matters: Fourth-year course builds partnerships between students and communities. <http://yourontarioresearch.ca/2018/01/fourth-year-course-builds-partnerships-students-communities/>
5. **Influents.** Municipal Biosolids Beneficial Use Education Day. p. 69
6. **The AgriNews.** Triclosan not a threat. p. 37
7. **Ontario Farmer.** Off-cited biosolids risk disproven. p. B19
8. **AGCanada.** Triclosan not a threat to food chain: study addresses concerns about treated sewage as fertilizer. <https://www.agcanada.com/daily/triclosan-not-a-threat-to-food-chain-study/>