

Environmental Biotechnology: Applications and Potential risks

Co-Chair: **Real Roy**, University of Victoria, Department of Biology

Co-Chair: **Bin Zhu**, Water Science and Technology Directorate, Environment Canada, 11 Innovation Blvd, Saskatoon, SK, S7N 3H5

Abstract:

Environmental Biotechnology is the multidisciplinary integration of sciences and engineering in order to utilize the huge biochemical potential of biological systems for the protection, restoration and preservation of the environment and for the sustainable use of natural resources. The session will cover technology developments of environmental biotechnology reinvigorated by advances in emerging genomics, proteomics and metabolomics and developments of how biotechnological and engineering techniques are applied to solve environmental problems. With their novel biological properties, biotechnology products may also pose unique regulatory challenges. Therefore, this session will address potential ecological impacts of biotechnology products in support of regulatory policies on environmental biotechnology. This session provides a perfect resource for people needing to develop a sound understanding of environmental biotechnology, to have better knowledge of how it can be applied to address important environmental issues, and to have better understanding of risk assessment and management of new applications of environmental biotechnology.

- New development of environmental biotechnologies (in both Omics and engineering areas);
- New development of applications of environmental biotechnology (bacterial source tracking, bioremediation, degradation, bio-processing, renewable resources, etc.);
- Detection of environmental effects of biotechnology products;
- Monitoring, regulatory compliance, and policies.

Co- Chair Biographies:

Bin Zhu is a Research Scientist at Aquatic Ecosystem Protection Division, Water Science and Technology Directorate, Environment Canada. Over the past years, Dr. Bin Zhu has been conducting research on investigating ecological effects of biotechnology products including genetically modified organisms in support of governmental policies on biotechnology. His research focuses on the detection and persistence of novel genetic material in the environment and monitoring long term ecological effects after commercial release of biotechnology products using genomics techniques. His research was supported by a number of funding sources including Canadian Regulatory System of Biotechnology, Canadian Environmental Protection Act, Strategic Technology

Application of Genomics in the Environment Program, and Canadian Biotechnology Strategy.