



St. Olaf College Chemistry Department

Thursday, October 22,
2009

Regents Hall 150

3:15 p.m. with refreshments
before the seminar

HPLC-MS/MS analysis of pharmaceutical residues and protein adducts in aquatic and terrestrial organisms: novel biomarkers of environmental exposure

Dr. Kevin Chambliss
Department of Chemistry & Biochemistry
Baylor University

*Biographical Information: Ph.D. in analytical chemistry – Colorado State University (1998)
Postdoctoral Fellow – Oak Ridge National Laboratory
Appointed to Baylor Faculty (2001).*



Research in the Chambliss group represents balanced interest in pure and applied analytical chemistry. All projects are broadly focused in the area of chemical separations and analysis. The primary objective of research in our laboratory is the development of novel analytical tools that inform scientific questions of industrial and environmental significance. Current projects are focused on: 1) improved fundamental understanding of enzymatic and microbial inhibition in biomass-to-biofuel conversion processes, (2) occurrence, fate, and transport of emerging environmental contaminants, and (3) a biologically-inspired electrochemical sensing strategy for electroinactive ions in aqueous solution.

Abstract: Analysis of polar contaminants is a rapidly advancing area of environmental mass spectrometry. To this end, our group has recently developed a novel high performance liquid chromatography-tandem mass spectrometry (HPLC-MS/MS) screening method for pharmaceuticals and select metabolites in fish. Knowledge of contaminant occurrence in fish tissues has obvious implications for human health. Fish are also an integral component of aquatic food webs and can potentially facilitate the transfer of contaminants from aquatic to terrestrial ecosystems via trophic transfer. This talk will summarize results of a national pilot study of pharmaceutical accumulation conducted in collaboration with U.S. EPA. Results of a more recent study focused on uptake and biotransformation of explosives in earthworms will also be presented. Both of these investigations provide definitive examples of the analytical challenges affiliated with quantifying trace levels of chemicals in complex matrices.

St. Olaf College
1520 St. Olaf Avenue
Northfield, MN 55057
507-786-3104