



*The BRACE CENTRE FOR WATER RESOURCES MANAGEMENT*

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## **FATE OF HALOACETIC ACIDS IN WATER**

Haloacetic acids are degradation products of halogenated compounds. Some of these acids are produced from naturally occurring organohalogens (main precursors) in the terrestrial environment. Anthropogenic sources arise from the atmospheric degradation of chlorocarbons (CFCs) replacement compounds, hydrofluorocarbons (HFCs) and hydrochlorofluorocarbons (HCFCs) used in various industrial applications. Relatively high concentrations of haloacetates have been identified in different aqueous reservoirs. Trifluoroacetic acid (TFAA) rainwater concentrations are in the range 36-346 ng/L, trichloroacetic acid (TCAA) up to 175 ng/L in rainwater, snow, groundwater, while some bromoacetates have been detected in drinking water and precipitation. The global distribution and high stability of these acids particularly, in the case of TFAA, has prompted concern that it will tend to accumulate to toxic levels and pose threats to humans and the ecosystem. To better understand the ecotoxicological effects of haloacetic acids, it is important to study their degradation pathways in the natural environment. This study involved non biological degradation routes for haloacetic acids. The trihaloacetic acids (with the exception of TFAA) undergo thermal decarboxylation to carbon dioxide and haloform while the mono and diacids degrade by hydrolysis to the corresponding acid halides. Furthermore, photolysis and photocatalytic processes have also been used as additional degradation pathways for complete mineralisation of haloacetic acids to carbon dioxide and inorganic acids. The results of our studies have shown that haloacetic acids have relatively long lifetimes in the natural environment.

Dr Lydia Lifongo is currently an Assistant Lecturer in Chemistry at the University of Buea-Cameroon and is also the Team Coordinator of a local NGO called "Community Watershed Development Alliance Cameroon (COWADAC)". She has B.Sc. and M.Sc. degrees in Chemistry from the University of Buea and a Ph.D. in Environmental Science from the University of East Anglia.

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McGill Downtown Campus, Macdonald Engineering Building, Rm 497  
3:00 - 4:00 pm

**EVERYONE WELCOME**