

Résumé

Thomas G. Chasteen, Ph.D.
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Sam Houston State University
Huntsville, Texas 77341

Education:

Degree: **Doctor of Philosophy** in Chemistry
1986-1990 University of Colorado, Boulder, USA
Field: Analytical Environmental Chemistry
Dissertation Title: **Fluorine-Induced Chemiluminescence Detection of Biologically Methylated Tellurium, Selenium, and Sulfur Compounds & Methyl-dithiocarbonylhydrazide as a Formaldehyde Derivatization Reagent**
National Center for Atmospheric Research Cooperative Thesis No. 129

Degree: **Masters of Science** in Chemistry
1983-1985 East Texas State University
Field: Analytical Geochemistry
Thesis Title: **Geochemical Study of Uranium & Vanadium in Lignite Coal Seams**

Degree: American Chemical Society Certified **Bachelor of Science** in Chemistry
1976-1980 East Texas State University (now Texas A&M, Commerce, Texas USA)

Employment:

August 1, 2002 to present
Professor of Chemistry Sam Houston State University

May 1996–July 2002
Associate Professor of Chemistry Sam Houston State University

Summer 1994
Guest Professor of Analytical Chemistry, University of Zürich, Zürich, Switzerland

Summer 1994
Research Fellow at University of Zürich
Funded by Roche Research Foundation

September 1, 1991-April 1996
Assistant Professor of Chemistry Sam Houston State University, Huntsville, Texas

August 16, 1990 to June 30, 1991
Visiting Assistant Professor of Chemistry St. Lawrence University, Canton, New York

March 1989 to June 1990
Graduate Research Assistant University of Colorado
Funded by **Environmental Protection Agency**

March 1987 to March 1989
Graduate Research Fellowship in Advanced Study Program
National Center for Atmospheric Research (NCAR)

September 1986 to March 1987
Graduate Research Assistant NCAR and University of Colorado

Employment (continued):

September 1983 to December 1985

Graduate Research Assistant

Department of Chemistry, East Texas State University, Commerce, Texas

Funded by Texas Utilities Generating Company

July 1979 to January 15, 1983

Southern California Chemical Company

Staff chemist in charge of quality control at both Texas and Illinois facilities producing etchants for the semiconductor industry

Promoted to management position to hire, train and supervise plant chemists at Texas and Illinois facilities

Promoted to research and development chemist

Promoted to Director of Research, Southern California Chemical Company

Resigned after 3 1/2 years at SCC to pursue advanced degrees in analytical/environmental chemistry

Awards and Affiliations:

Honors Professor of the Year, SHSU spring 2000

American Chemical Society; Environmental Chemistry Division

Who's Who Among America's Teachers 1996

Publications:

Refereed

Biomimetic, mild chemical synthesis of CdTe-GSH quantum dots with improved biocompatibility

J.M. Perez-Donoso, J.P. Monras, D. Bravo, A. Aguirre, A.F. Quest, I.O. Osorio-Roman, R.F.

Aroca, T.G. Chasteen, and C.C. Vasquez

PLoS ONE, 2012, **7**, e30741.

Molality–Molarity Challenge

M. Hashemi and T.G. Chasteen

Analytical and Bioanalytical Chemistry, 2011, **401**, 1091-1092.

Hofmeister Effect Challenge

M. Hashemi and T.G. Chasteen

Analytical and Bioanalytical Chemistry, 2011, **400**, 643-644.

A Simple, Fast, Sensitive and Quantitative Chemical Method for Assessing Tellurite Concentrations in Aqueous Solutions and Microbiological Culture Media

R.C. Molina, R. Burra, J.M. Perez, A.O. Elias, C. Munoz, R.A. Montes, T.G. Chasteen, C.C. Vasquez,

Applied Environmental Microbiology, 2010, **76**, 4901-4904.

Production of dimethyl triselenide and dimethyl diselenenyl sulfide in the headspace of metalloid-resistant *Bacillus* spp. grown in the presence of selenium oxyanions

R. Burra; G. A. Pradenas; R. A. Montes; C. C. Vasquez; T. G. Chasteen

Analytical Biochemistry, 2010, **396**, 217-222.

Publications (continued):

- Biological Interactions of Selenocyanate: Bioprocessing, Detection, and Toxicity
R. Burra, J. D. Fox, G. A. Pradenas, C. C. Vasquez, and T. G. Chasteen
Environmental Technology, 2009, **30**, 1327-1335.
- Tellurite: History, Oxidative Stress and Molecular Mechanisms of Resistance
T. G. Chasteen, D. E. Fuentes, J. C. Tantalean, and C. C. Vasquez
FEMS Microbiology Reviews, 2009, **33**, 820-832.
- Cloning, Purification and Characterization of *Geobacillus stearothermophilus* V Uroporphyrinogen-III C-Methyltransferase: Evaluation of its Role in Resistance to Potassium Tellurite in *Escherichia coli*
M. A. Araya, J. C. Tantalean, D. E. Fuentes, J. M. Perez, I. L. Calderon, C. P. Saavedra, R. Burra, T. G. Chasteen, and C. C. Vasquez
Research in Microbiology, 2009, **160**, 125-133.
- Cysteine Metabolism-Related Genes and Bacterial Resistance to Potassium Tellurite
D. E. Fuentes, E. L. Fuentes, M. E. Castro, J. M. Pérez, M. A. Araya, T. G. Chasteen, S. E. Pichuantes and C. C. Vásquez
Journal of Bacteriology, 2007, **187**, 8953-8960.
- Capillary Electrophoretic Determination of Selenocyanate and Selenium and Tellurium Oxyanions in Bacterial Cultures
B. K. Pathem, G. A. Pradenas, M. E. Castro, C. C. Vásquez and T. G. Chasteen
Analytical Biochemistry, 2007, **364**, 138-144.
- Web-Based Animations in Analytical Chemistry
T. G. Chasteen
Chapter in "Active Learning: Models from the Analytical Science"; ACS Symposium Series; P. Mabrouk, Ed.; American Chemical Society, Washington, DC; 2007.
- Chalcogens (S, Se, Te) in Microorganisms and Plants
T. G. Chasteen and R. Bentley
Chapter in "Handbook of Chalcogens: New Perspectives in Sulfur, Selenium, and Tellurium"; pp. 671-713; F. Devillanova Ed.; Royal Society of Chemistry, London; 2006.
- The Expression of the *ubiE* Gene of *Geobacillus stearothermophilus* V in *Escherichia coli* K-12 Mediates the Evolution of Selenium Compounds into the Headspace of Selenite- and Selenate-Amended Cultures
J. W. Swearingen, Jr., D. E. Fuentes, M. A. Araya, M. F. Plishker, C. P. Saavedra, T. G. Chasteen, and C. C. Vasquez.
Applied Environmental Microbiology, 2006, **72**, 963-967.
- Identification of biogenic dimethyl selenodisulfide in the headspace gases above genetically-modified *Escherichia coli*
J. W. Swearingen, Jr., D. P. Frankel, D. E. Fuentes, C. P. Saavedra, C. C. Vasquez, and T. G. Chasteen
Analytical Biochemistry, 2006, **348**, 115-122.
- Identification of biogenic organotellurides in *Escherichia coli* K-12 headspace gases using solid phase microextraction and gas chromatography
J. W. Swearingen, Jr., M. M. Araya, M. F. Plishker, C. P. Saavedra, C. C. Vasquez, and T. G. Chasteen
Analytical Biochemistry, 2004, **331**, 106-114.

Publications (continued):

Geobacillus stearothermophilus V ubiE gene product is involved in the evolution of dimethyl telluride in *Escherichia coli* K-12 cultures amended with potassium tellurate but not potassium tellurite
M. M. Araya, J. W. Swearingen, Jr., M. F. Plishker, C. P. Saavedra, T. G. Chasteen, and C. C. Vasquez

Journal of Biological Inorganic Chemistry, 2004, **9**, 609-615.

Environmental Volatile Organosulfur Compounds--Formation and Degradation of Dimethyl Sulfide, Methanethiol, and Related Materials

R. Bentley and T. G. Chasteen

Chemosphere, 2004, **55**, 291-317.

Organotellurium Compound Toxicity in a Promyelocytic Cell Line Compared to a Non-Tellurium Containing Organic Analog

B. L. Sailer, N. Liles, S. Dickerson, S. Sumners, and T. G. Chasteen

Toxicology in Vitro, 2004, **18**, 475-482.

Volatile Organic Sulfur Compounds of Environmental Interest: Dimethyl Sulfide and Methanethiol. An Introductory Overview

T. G. Chasteen and R. Bentley

Journal of Chemical Education, 2004, **81**, 1524-1528.

Determination of Elemental and Precipitated Selenium Production by a Facultative Anaerobe Grown Under Sequential Anaerobic/Aerobic Conditions

S. Hapuarachchi, J. Swearingen, Jr., and T. G. Chasteen

Process Biochemistry, 2004, **39**, 1607-1613.

Frederick Challenger, 1887-1983: Chemist and Biochemist

T. G. Chasteen and R. Bentley

Applied Organometallic Chemistry, 2003, **17**, 201-211.

Biomethylation of Selenium and Tellurium: Microorganisms and Plants

T. G. Chasteen and R. Bentley

Chemical Reviews, 2003, **103**, 1-26.

Cytometric Determination of Novel Organotellurium Compound Toxicity in a Promyelocytic Cell Line

B. L. Sailer, N. Liles, S. Dickerson, and T. G. Chasteen

Archives of Toxicology, 2003, **77**, 30-36.

Oxidation Numbers in the Study of Metabolism

R. Bentley, J. Franzen, and T. G. Chasteen

Biochemistry and Molecular Biology Education, 2002, **30**, 288-292.

Of Garlic, Mice, and Gmelin: The Odor of Trimethylarsine

T. G. Chasteen, M. Wiggli, and R. Bentley

Applied Organometallic Chemistry, 2002, **16**, 281-286.

Microbial Methylation of Metalloids: Arsenic, Antimony and Bismuth

R. Bentley and T. G. Chasteen

Microbiology and Molecular Biology Reviews, 2002, **66**(2), 250-271.

Arsenical Curiosa and Humanity

R. Bentley and T.G. Chasteen

The Chemical Educator, 2002, **7**(2) 51-60.

Publications (continued):

Teaching with Chemical Instrumentation on the Web

T. G. Chasteen

Journal of Chemical Education, 2001, **78**(9), 1144-1148.

Production of Dimethyl Telluride and Elemental Tellurium by Bacteria Amended with Tellurite or Tellurate

R. S. T. Basnayake, J. H. Bius, O. M. Akpolat, and T. G. Chasteen

Applied Organometallic Chemistry, 2001, **15**(6), 499-510.

The Fate of Selenate and Selenite Metabolized by *Rhodobacter sphaeroides*

V. Van Fleet-Stalder, T.G. Chasteen, I. J. Pickering, G. N. George, and R.C. Prince

Applied and Environmental Microbiology, 2000, **66**(11), 4849-4853.

X-ray Absorption Spectroscopy of Selenium-Containing Amino Acids

I. J. Pickering, G. N. George, V. Van Fleet-Stalder, T. G. Chasteen, and R. C. Prince

Journal of Biological and Inorganic Chemistry, 1999, **4**(6), 791-794.

Bacterial Cytotoxicity and Induction of Apoptosis in Promyelocytic (HL-60) Cells by Novel Organotellurium Compounds

B. Sailer, T. Prow, S. Dickerson, J. Watson, N. Liles, S. Patel, V. Van Fleet-Stalder, & T. Chasteen

Environmental Toxicology and Chemistry, 1999, **18**(12), 2926-2933.

Using Fluorine-Induced Chemiluminescence to Detect Organo-Metalloids in the Headspace of Phototrophic Bacterial Cultures Amended with Selenium and Tellurium

V. Van Fleet-Stalder and T. G. Chasteen

Journal of Photochemistry and Photobiology, 1998, **43**/3, 193-203.

Volatile Chemical Species of Selenium

T. G. Chasteen

Chapter in "Environmental Chemistry of Selenium", W.T. Frankenberger and R.A. Engberg, Eds.; Marcel Dekker, New York, 1998; 589-612.

Effects of the Variation of Growth Conditions on the Production of Methyl Selenides in Cultures of *Rhodobacter Sphaeroides* 2.4.1 Amended With Selenium Oxyanions

V. Van Fleet-Stalder, H. Gürleyük, R. Bachofen, and T. G. Chasteen

Journal Industrial Microbiology and Biotechnology, 1997, **19**, 98-103.

Confirmation of the Biomethylation of Antimony Compounds

H. Gürleyük, V Fleet-Stalder, and T. G. Chasteen

Applied Organometallic Chemistry, 1997, **11**, 471-483.

Toxicity of Oxyanions of Selenium and of a Proposed Bioremediation Intermediate, Dimethyl Selenone

R. Yu, J.P. Coffman, V. Van Fleet-Stalder, and T.G. Chasteen

Environmental Toxicology and Chemistry, 1997, **16**(2), 140-145.

Spreadsheet Approach to the Linear Least Squares Fit

M. L. Carman and T. G. Chasteen

The Chemical Educator, **1**(1); S 1430-4171(96)01012-6 ; March 25, 1996.

Volatilization of Arsenic Compounds by Mixed Soil Bacteria and Pure Cultures of Methanogenic Bacteria

R. Bachofen, L. Birch, U. Buchs, P. Ferloni, I. Flynn, G. Jud, H. Tahedl, and T. G. Chasteen

In "**Bioremediation of Inorganics**", R. E. Hinchee, J. L. Means and D. R. Burris eds.; Batelle Press, Columbus, OH, 1995; 103-108.

Publications (continued):

- Bacterial Bioremediation Of Selenium Oxyanions Using A Dynamic Flow Bioreactor
S. L. McCarty, T. G. Chasteen, V. Stalder, and R. Bachofen
In “**Bioremediation of Inorganics**”, R. E. Hinchee, J. L. Means and D. R. Burris eds.;
Batelle Press, Columbus, OH, 1995; 95–102.
- Chromatographic Determination of Phosphine (PH₃) and Hydrogen Sulfide (H₂S) in the Headspace of Anaerobic Bacterial Enrichments Using Flame Photometric Detection
U. Brunner, Th. G. Chasteen, P. Ferloni, and R. Bachofen
Chromatographia, 1995, **40**(7), 399-403.
- A Method of Repeated Sampling of Static Headspace above Anaerobic Bacterial Cultures with Fluorine-Induced Chemiluminescence Detection
V. Stalder, N. Bernard, K. W. Hanselmann, R. Bachofen, and T. G. Chasteen
Analytica Chimica Acta, 1995, **303**, 91-97.
- Amending Cultures of Selenium Resistant Bacteria with Dimethyl Selenone
L. Zhang and T. G. Chasteen
Applied Organometallic Chemistry, 1994, **8**(6), 501-508.
- Confusion Between Dimethyl Selenenyl Sulfide and Dimethyl Selenone Released by Bacteria
T. G. Chasteen
Applied Organometallic Chemistry, 1993, **7**(5), 335-342.
- Phototrophic Bacteria Produce Volatile, Methylated Sulfur and Selenium Compounds
S. L. McCarty, T. G. Chasteen, M. Marshall, R. Fall, and R. Bachofen
Federation of European Microbiology Societies Letters, 1993, **112**, 93-98.
- Solving Equilibria Problems with a Graphing Calculator: A Robust Method, Free of Algebra and Calculus
D. K. Ruch and T. G. Chasteen
Journal of Chemical Education, 1993, **70**(7), A184-185,1993.
- Fluorine-Induced Chemiluminescence Detection of Phosphine, Alkyl Phosphines, and Monophosphate Esters
T. G. Chasteen, R. Fall, J. W. Birks, H. R. Martin, and R. J. Glinski
Chromatographia, 1991, **31**, 342-346.
- Fluorine-Induced Chemiluminescence Detection of Biologically Methylated Tellurium, Selenium, and Sulfur Compounds
T. G. Chasteen, G. M. Silver, J. W. Birks, and R. Fall
Chromatographia, 1990, **30**, 181-185.

Scientific Presentations

More than 70 **presentations** at local/regional (40+), U.S. national (13), and international (18) scientific meetings in the past 19 years.

Books or Chapters

Instrumental Determination of NO_x via Chemiluminescence; Instrumental Determination of Atmospheric Methane; Electron Capture Detection of Pesticides; Inductively Coupled Plasma Determination of Lead; Ion Chromatography of Environmentally Significant Anions; Gas Chromatography-Mass Spectrometric Determination of DDE;

T. G. Chasteen

Environmental methods of analysis primers in: "Environmental Chemistry"; Fourth Edition; C. Baird and M. Cann. W.H. Freeman, New York, 2008.

Web-Based Animations in Analytical Chemistry;

T. G. Chasteen

Chapter in "Active Learning: Models from the Analytical Science"; ACS Symposium Series; P. Mabrouk, Ed.; American Chemical Society, Washington, 2007.

Chalcogens (S, Se, Te) in Microorganisms and Plants

T. G. Chasteen and R. Bentley

Chapter in "Handbook of Chalcogens: New Perspectives in Sulfur, Selenium, and Tellurium"; F. Devillanova, Ed.; Royal Society of Chemistry, London, 2006.

Volatile Chemical Species of Selenium

T. G. Chasteen

Chapter in "Environmental Chemistry of Selenium", W.T. Frankenberger and R.A. Engberg, Eds.; Marcel Dekker, New York, 1998; 589-612.

Experience the Extraordinary Chemistry of Ordinary Things: *The Laboratory Manual* **Fourth Edition**

B. C. Richardson and T. G. Chasteen

John Wiley and Sons: New York, 2003, 347 pages with photographs.

Qualitative and Instrumental Analysis of Environmentally Significant Elements

T. G. Chasteen

John Wiley and Sons: New York, 1993, 131 pages.

Indexing Projects

Perspectives in Environmental Chemistry, D. Macalady, Ed., Oxford University Press, 495 pages, 1997.

Hidden Danger: Environmental Consequences of Preparing for War, A.H. Erlich and J.W. Birks, Eds. Sierra Club Press, 242 pages, 1990.

Chemiluminescence and Photochemical Reaction Detection in Chromatography, J.W. Birks, Ed. VCH Publishers, 291 pages, 1989.

Patents

"Chemiluminescent Light Source Using Visible Light for Biotherapy"; M.J. Tolkoff, P. Levin, R. Arcangeli, A. Levine, and T.G. Chasteen; United States Patent Office: USP 7,255,691; USPO Publication Date August 14, 2007.

"Chemiluminescent Light Source Using Visible Light for Biotherapy"; M.J. Tolkoff, A. Levine, P. Levine, R. Arcangeli, and T.G. Chasteen; European Patent Office: US2004010299; EPO Publication January 15, 2004.