

Rolf D. Joerger

Education

Ph.D. in Microbiology, North Carolina State University, 1987

Diplom, Universität Hohenheim, Stuttgart, Germany, 1983

Professional Positions

July 2002 – Present: Associate Professor, University of Delaware

September 1996 – June 2002: Assistant Professor, University of Delaware

October 1993 – August 1996: Visiting Scientist, DuPont, Wilmington, DE

April 1991 – September 1993: Research Microbiologist, USDA-ARS-ERRC, Philadelphia, PA

June 1987 – November 1989: Research Microbiologist, USDA-ARS, Raleigh, NC

Teaching Responsibilities

ANFS 159 Topics in Food Science (1 credit)

HONR 291 Honors Colloquium: Food, glorious food – challenges for the 21st century (3 credits)

ANFS 411/611 Food Science Capstone (4 credits)

ANFS 449/649 Food Biotechnology (4 credits)

ANFS 111 Section on Food Safety

Memberships

Member of Institute of Food Technologists

Member American Society of Microbiologists

Reviewer activities

Reviewer for Foodborne Pathogens and Diseases, FEMS, Packaging Technology and Science, Journal of Food Science, International Journal of Food Science and Technology, Innovative Food Science and Emerging Technologies, Marine Drugs, Journal of Food Processing and Preservation, American Society of Agricultural and Biological Engineering, Journal of Applied Microbiology, PlosOne, others

Editorial activities

2011-2012 Editor, Bioresource Technology

2008-2010 Associate Editor, Bioresource Technology

Research proposal review

2010 Panel member – National Institute of Allergy and Infectious Diseases review panel for conference proposals on microbiological topics

2010 Reviewer – University of Wisconsin Milwaukee Research Foundation grant proposal

2010 Panel member, USDA-ARS projects, Panel 2 – Poultry Processing/Egg: Review of 5 proposals

2015 – Chair – NP 108 Panel 17: Microbial Communities in Food, USDA-ARS

2016 Reviewer for research proposal to the Livestock Research Innovation Corporation, Ontario Canada

2016 Reviewer for research proposal to the Kentucky Science and Engineering Foundation

Grants received during the past five years

Joerger, R. Evaluation of the efficacy of antimicrobial agents to prevent the transfer of *Listeria monocytogenes* from existing biofilms to produce or processing surfaces. Center for Produce Safety.
Hong Li, R. Joerger, E. Benson. Frequent Application of Litter Amendments in Broiler Houses during Grow-out on Animal Health, Production, and Environment. US Poultry & Egg Association.
Benson, E., R. Joerger, B. Alphin, J. Briscoe, D. Style. Evaluations of Containerized Foam Depopulation of Layer Hens and Mass Emergency Depopulation Foam as a Disinfectant. USDA.

Publications

- Joerger, R. D.**, Ganguli, A., Wachira, J. and Q. Hardy. 2021. Evaluation of sodium hypochlorite and peroxyacetic acid to prevent transfer of surface-attached *Listeria monocytogenes* to produce. J. Food Safety. In press.
- Joerger, R. D.**, Ganguli, A. de Los Santos, M. and Li, H. 2020. Effect of sodium bisulfate amendments on bacterial populations in broiler litter. *Poult. Sci.* 99:5560-5571.
- Joerger, R. D.** 2020. Salmonella enterica's "Choice": Itaconic Acid Degradation or Bacteriocin Immunity. *Genes*. 11. Article number: 797.
- Ganguly, A., and **R. Joerger**. 2017. Sugar sulfates are not hydrolyzed by the acid-inducible sulfatase AsIA from *Salmonella enterica* Enteritidis Nal(R) and Kentucky 3795 at pH 5.5. *Canadian Journal of Microbiology*. 63:739-744.
- Joerger, R.**, and A. Ganguly. 2017. Current status of the preharvest application of pro- and prebiotics to farm animals to enhance the microbial safety of animal products. *Microbiology Spectrum*. 5.
- Santos, M., C. Golt, **R. Joerger**, G. Mechor, G. Mourao, and L. Kung. 2017. Identification of the major yeasts isolated from high moisture corn and corn silages in the United States using genetic and biochemical methods. *Journal of Dairy Science*. 100:1151-1160.
- Joerger, R.**, and S. Choi. 2015. Contribution of the *hdeB*-like gene (SEN1493) to survival of *Salmonella enterica* Enteritidis Nal^R at pH 2. *Foodborne Pathogens and Disease*. 12:353-359.
- Kung, L., J. Lim, D. Hudson, J. Smith, and **R. Joerger**. 2015. Chemical composition and nutritive value of corn silage harvested in the northeastern United States after Tropical Storm Irene. *Journal of Dairy Science*. 98:2055-2062.
- Joerger, R.**, C. Sartori, J. Frye, J. Turpin, C. Schmidt, M. McClelland, and S. Porwollik. 2012. Gene expression analysis of *Salmonella enterica* Enteritidis Nal^R and *Salmonella enterica* Kentucky 3795 exposed to HCl and acetic acid in rich medium. *Foodborne Pathogens and Disease*. 9:331-337.
- Massouda, D., D. Visioli, D. Green, and **R. Joerger**. 2012. Extruded blends of chitosan and ethylene copolymers for antimicrobial packaging. *Packaging Technology and Science*. 25:321-327.
- Liu, Y., A. Ream, **R. Joerger**, J. Liu, and Y. Wang. 2011. Gene expression profiling of a pressure-tolerant *Listeria monocytogenes* Scott A *ctsR* deletion mutant. *Journal of Industrial Microbiology & Biotechnology*. 38:1523-1533.
- Joerger, R.**, I. Hanning, and S. Ricke. 2010. Presence of arsenic resistance in *Salmonella enterica* Serovar Kentucky and other serovars isolated from poultry. *Avian Diseases*. 54:1178-1182.
- Chen, H., H. Neetoo, M. Ye, and **R. Joerger**. 2009. Differences in pressure tolerance of *Listeria monocytogenes* strains are not correlated with other stress tolerances and are not based on differences in *CtsR*. *Food Microbiology*. 26:404-408.
- Joerger, R.**, S. Sabesan, D. Visioli, D. Urian, and M. Joerger. 2009. Antimicrobial activity of chitosan attached to ethylene copolymer films. *Packaging Technology and Science*. 22:125-138.

- Joerger, R.**, C. Sartori, and K. Knierl. 2009. Comparison of genetic and physiological properties of *Salmonella enterica* isolates from chickens reveals one major difference between serovar Kentucky and other serovars: Response to acid. *Foodborne Pathogens and Disease*. 6:503-512.
- Neetoo, H., M. Ye, H. Chen, **R. Joerger**, D. Hicks, and D. Hoover. 2008. Use of nisin-coated plastic films to control *Listeria monocytogenes* on vacuum-packaged cold-smoked salmon. *International Journal of Food Microbiology*. 122:8-15.
- Guan, D., **R. Joerger**, K. Knierl, K. Calci, D. Hicks, L. Pivarnik, and D. Hoover. 2007. Effect of high hydrostatic pressure on four genotypes of F-specific RNA bacteriophages. *Journal of Applied Microbiology*. 102:51-56.
- Joerger, R.** 2007. Antimicrobial films for food applications: A quantitative analysis of their effectiveness. *Packaging Technology and Science*. 20:231-273.
- Joerger, R.**, H. Chen, and K. Knierl. 2006. Characterization of a spontaneous, pressure-tolerant *Listeria monocytogenes* Scott A *ctsR* deletion mutant. *Foodborne Pathogens and Disease*. 3:196-202.
- Joerger, R.**, and T. Ross. 2005. Genotypic diversity of *Escherichia coli* isolated from cecal content and mucosa of one- to six-week-old broilers. *Poultry Science*. 84:1902-1907.
- Chen, H., **R. Joerger**, D. Kingsley, and D. Hoover. 2004. Pressure inactivation kinetics of phage lambda cl 857. *Journal of Food Protection*. 67:505-511.
- Joerger, R.** 2003. Alternatives to antibiotics: Bacteriocins, antimicrobial peptides and bacteriophages. *Poultry Science*. 82:640-647.
- Strapp, C., A. Shearer, and **R. Joerger**. 2003. Survey of retail alfalfa sprouts and mushrooms for the presence of *Escherichia coli* O157:H7, *Salmonella*, and *Listeria* with BAX, and evaluation of this polymerase chain reaction-based system with experimentally contaminated samples. *Journal of Food Protection*. 66:182-187.
- Zhu, X., and **R. Joerger**. 2003. Composition of microbiota in content and mucus from caeca of broiler chickens as measured by fluorescent in situ hybridization with group-specific, 16S rRNA-targeted oligonucleotide probes. *Poultry Science*. 82:1242-1249.
- Zhu, X., T. Zhong, Y. Pandya, and **R. Joerger**. 2002. 16S rRNA-based analysis of microbiota from the cecum of broiler chickens. *Applied and Environmental Microbiology*. 68:124-137.
- Shearer, A., C. Strapp, and **R. Joerger**. 2001. Evaluation of a polymerase chain reaction-based system for detection of *Salmonella enteritidis*, *Escherichia coli* O157:H7, *Listeria* spp., and *Listeria monocytogenes* on fresh fruits and vegetables. *Journal of Food Protection*. 64:788-795.
- Sklar, I., and **R. Joerger**. 2001. Attempts to utilize bacteriophage to combat *Salmonella enterica* serovar Enteritidis infection in chickens. *Journal of Food Safety*. 21:15-29.
- Haas, M., D. Bailey, W. Baker, T. Berka, D. Cichowicz, Z. Derewenda, R. Genuario, **R. Joerger**, R. Klein, K. Scott, and D. Woolf. 1999. Biochemical and molecular biological characterization of a lipase produced by the fungus *Rhizopus delemar*. *Fett-Lipid*. 101:364-370.
- Haas, M., **R. Joerger**, G. King, R. Klein, J. Dordick, and A. Russell. 1996. The use of rational mutagenesis to modify the chain length specificity of a *Rhizopus delemar* lipase. *Enzyme Engineering XIII*. 799:115-128.
- Hendrickson, E., T. Truby, R. Joerger, W. Majarian, and R. Ebersole. 1995. A sensitive multianalyte immunoassay using covalent DNA-labeled antibodies and polymerase chain reaction. *Nucleic Acids Research*. 23:522-529.
- Joerger, R.**, T. Truby, E. Hendrickson, R. Young, and R. Ebersole. 1995. Analytic detection with DNA-labeled antibodies and polymerase chain reaction. *Clinical Chemistry*. 41:1371-1377.
- Banta, L., **R. Joerger**, V. Howitz, A. Campbell, and A. Binns. 1994. Glu-255 outside the predicted ChvE binding site in VirA is crucial for sugar enhancement of acetosyringone perception by *Agrobacterium tumefaciens*. *Journal of Bacteriology*. 176:3242-3249.

- Joerger, R.**, and M. Haas. 1994. Alteration of chain length selectivity of a *Rhizopus delemar* lipase through site-directed mutagenesis. *Lipids*. 29:377-384.
- Binns, A., **R. Joerger**, L. Banta, K. Lee, D. Lynn, E. Nester, and D. Verma. 1993. Molecular and chemical analysis of signal perception by *Agrobacterium*. *Advances in Molecular Genetics of Plant-Microbe Interactions, Vol 2*. 14:51-61.
- Joerger, R.**, and M. Haas. 1993. Overexpression of a *Rhizopus delemar* lipase gene in *Escherichia coli*. *Lipids*. 28:81-88.
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- Hess, K., M. Dudley, D. Lynn, **R. Joerger**, and A. Binns. 1991. Mechanism of phenolic activation of *Agrobacterium* virulence genes – Development of a specific inhibitor of bacterial sensor response systems. *Proceedings of the National Academy of Sciences of the United States of America*. 88:7854-7858.
- Joerger, R.**, E. Wolfinger, and P. Bishop. 1991. The gene encoding dinitrogenase reductase 2 is required for expression of the second alternative nitrogenase from *Azotobacter vinelandii*. *Journal of Bacteriology*. 173:4440-4446.
- Bishop, P., and **R. Joerger**. 1990. Genetics and molecular biology of alternative nitrogen fixation systems. *Annual Review of Plant Physiology and Plant Molecular Biology*. 41:109-125.
- Joerger, R.**, T. Loveless, R. Pau, L. Mitchenall, B. Simon, and P. Bishop. 1990. Nucleotide sequences and mutational analysis of the structural genes for nitrogenase 2 of *Azotobacter vinelandii*. *Journal of Bacteriology*. 172:3400-3408.
- Joerger, R.**, M. Jacobson, and P. Bishop. 1989. Two nifA-like genes required for expression of alternative nitrogenases by *Azotobacter vinelandii*. *Journal of Bacteriology*. 171:3258-3267.
- Joerger, R.**, M. Jacobson, R. Premarkumar, E. Wolfinger, and P. Bishop. 1989. Nucleotide sequence and mutational analysis of the structural genes (*anfHDGK*) for the second alternative nitrogenase from *Azotobacter vinelandii*. *Journal of Bacteriology*. 171:1075-1086.
- Joerger, R.**, and P. Bishop. 1988. Bacterial alternative nitrogen fixation systems. *CRC Critical Reviews in Microbiology*. 16:1-14.
- Joerger, R.**, and P. Bishop. 1988. Nucleotide sequence and genetic analysis of the *nifB-nifQ* region from *Azotobacter vinelandii*. *Journal of Bacteriology*. 170:1475-1487.
- Joerger, R.**, R. Premarkumar, and P. Bishop. 1986. Tn5-induced mutants of *Azotobacter vinelandii* affected in nitrogen fixation under Mo-deficient and Mo-sufficient conditions. *Journal of Bacteriology*. 168:673-682.