

**BLEDAR BISHA, D.V.M., M.Sc., Ph.D. CURRICULUM VITAE**

University of Wyoming, Department of Animal Science  
1000 E University Avenue, Dept. 3684, Laramie, WY 82071

Phone: (307) 766-2224, Fax: (307) 766-2355

Email: [bbisha@uwyo.edu](mailto:bbisha@uwyo.edu)

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## **A. EDUCATION AND PROFESSIONAL ADVANCEMENT**

### **A.1. Education**

Mjek Veteriner (D.V.M. equivalent): Veterinary Medicine, Agricultural University of Tirana, 1999.

Master of Science (M.Sc.): Food Science & Technology, Iowa State University, 2004.

Doctor of Philosophy (Ph.D.): Food Science & Technology, Iowa State University, 2009.

Postdoctoral Training: Food Microbiology, Colorado State University, 2009-2013.

### **A.2. Professional Advancement**

University of Wyoming: Assistant Professor - Food Microbiology (8/2013- ), Department of Animal Science.

Iowa State University: Affiliate Assistant Professor - Food Microbiology (1/2018-5/2021), Department of Food Science and Human Nutrition.

Colorado State University: Postdoctoral Fellow - Food Microbiology (9/2009-8/2013), Center for Meat Safety and Quality, Department of Animal Sciences.

Iowa State University: Research Associate - Food Microbiology (5/2009-9/2009), Department of Food Science and Human Nutrition.

Iowa State University: Graduate Research Assistant - Food Science and Technology (Microbiology concentration) (01/2002-5/2009), Department of Food Science and Human Nutrition.

Università degli Studi di Bari: Visiting Scientist - Food Safety and Microbiology (3/2001-12/2001), Facoltà di Medicina Veterinaria.

Universiteti Bujqësor i Tiranës: Instructor & Research Associate, Control of Foods of Animal Origin (taught: Meat and Packing Plant Hygiene) (8/1999-12/2001), Departamenti i Lendëve Paraklinike, Fakulteti i Mjekësise Veterinare.

## **B. RESEARCH RELATED ACTIVITIES**

### **B.1. General Research Summary**

My research focuses on the microbiology and microbial safety of foods. Specific research interests include control, detection and ecology of foodborne pathogens. Current research comprises the development of rapid and molecular diagnostics for foodborne pathogens; sample preparation strategies to improve microbial diagnostics; development and validation of rapid microbial detection methods; study of microorganisms at the single cell level; antimicrobial resistance in the food supply; microbial source tracking. Examples of specific research topics are listed below:

1. Development of rapid microbial detection technologies, biosensors and typing for foodborne pathogens in food and the environment using the following approaches:
  - Matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF-MS) typing of bacteria and detection of antimicrobial resistance.
  - Microfluidics (including paper-based analytical devices or  $\mu$ PADs).
  - Flow cytometry.
  - Capillary electrophoresis.
  - Nucleic acid-based (FISH, LAMP).
  - Bacteriophages.
  - Enzyme-based/colorimetric.
2. Development and validation of methods for effective capture and concentration of viral, protozoan and bacterial agents of importance in:
  - Water
  - Food/Food processing environment
  - Bioaerosols.
3. Ecology and epidemiology of antimicrobial resistant (AMR) bacteria in:
  - Livestock operations.
  - Wildlife (avian and mammalian).
  - Produce.
  - Environment.
4. Assessment of suitable indicators for foodborne and waterborne viruses and bacteria:
  - Coliphages.
  - Source tracking using traditional culture-based and molecular methods
  - Source tracking using next-generation sequencing methods
5. Evaluation and validation of effectiveness and mode of action of novel control methods to reduce pathogens in food and livestock (bacteriophage, probiotics, irradiation, bacteriocins, organic acids, and natural antimicrobials).

## **B.2. Research Work History**

### **Assistant Professor - Food Microbiology - 08/2013 – present.**

#### **Department of Animal Science, University of Wyoming, Laramie, WY**

- Development of novel high throughput identification methods for antimicrobial resistant bacteria using MALDI-TOF MS.
- Development and validation of methods for improved discrimination of foodborne bacteria via MALDI-TOF MS.
- Development of novel sampling methods for capture and concentration of bioaerosol-associated viruses from agricultural environments.
- Role of wildlife in the dissemination of foodborne pathogens and antimicrobial resistance into the food supply.
- Colorimetric and electrochemical-based microfluidic detection of foodborne pathogens.
- Metagenomic approaches to characterization of microorganisms from bioaerosols and water.
- Exposure of agricultural workers and characterization of microorganisms from bioaerosol and agricultural dust.

### **Affiliate Assistant Professor - Food Microbiology - 01/2018 – 05/2021.**

#### **Department of Food Science and Human Nutrition, Iowa State University, Ames, IA**

- Serve as an active member and contributor to the department by engaging in one or more of the following activities:
  - Collaborate with FSHN faculty on research projects.
  - Provide learning and/or internship opportunities for graduate and undergraduate students.
  - Collaborate or assist with teaching or student learning activities.
  - Serve on graduate student Program of Study Committees.

### **Postdoctoral Fellow - Food Microbiology - 09/2009 – 08/2013.**

#### **Center for Meat Safety and Quality, Department of Animal Sciences, Colorado State University, Fort Collins, CO**

- Developed rapid detection technologies for *E. coli* STEC, *Vibrio parahaemolyticus*, *Salmonella enterica*, protozoan and viral pathogens in fresh produce, water, meats, and water using specific bacteriophage, nucleic acid, colorimetric, and label-free approaches.
- Developed capture and concentration methods for viral, protozoan and bacterial food and waterborne pathogens and indicators.

- Developed field-based diagnostic technologies providing easy-to-use, inexpensive alternatives to established detection methods.
- Conducted research on the prevalence and incidence of CTX-M extended-spectrum  $\beta$ -lactamases in *E. coli* from dairy cattle.
- Validated natural antimicrobials (terpeneless orange essential oils) for control of pathogenic bacteria in meats.
- Flow cytometric determination of seropositive cats for certain viruses (FHV, FCV, FPV).
- Responsible for training, supervision and leading in research 10 graduate students in Animal Science (Food Safety specialization), Food Science, Chemistry, and Veterinary Medicine.
- Managed the *De.Te.Ct.* food microbiology diagnostic laboratory.

**Research Associate - 5/2009 – 9/2009**

**Department of Food Science and Human Nutrition, Iowa State University, Ames, IA**

- Developed capillary electrophoresis, flow cytometry and fluorescence *in situ* hybridization-based methods for detection of *Candida* spp. in blood and Raman spectroscopy for detection of *Salmonella* spp. in food.
- Conducted research on the elucidation of mechanisms of inactivation of *Listeria monocytogenes* via grape seed extract.
- Trained and supervised 2 graduate students.

**Graduate Research Assistant - 01/2005 – 05/2009**

**Department of Food Science and Human Nutrition, Iowa State University, Ames, IA**

- Designed, performed and analyzed research projects on rapid and molecular detection of foodborne pathogens, including *Salmonella* and *Listeria* spp., in food and food processing environment, principally based on utilization of fluorescence *in situ* hybridization and flow cytometry-based techniques.
- Conducted research on employment of fluorescence *in situ* hybridization and flow cytometry for detection of *Candida* spp., *Yersinia* spp., and *Campylobacter jejuni*.
- Developed rapid microbial detection methodologies in food and environment working closely with industry partners.

**Graduate Research Assistant - 01/2002 – 12/2004**

**Department of Food Science and Human Nutrition, Iowa State University, Ames, IA**

- Conducted research on control of *Listeria monocytogenes* via electron beam irradiation, organic acid salts and bacteriocins in ready-to-eat meat products.

- Conducted research on the use of probiotic cultures in reconstituted powdered milk for control of *Salmonella* spp. and *Listeria monocytogenes* or in reconstituted infant formula for control of *Enterobacter (Cronobacter) sakazakii*.
- Conducted research on the ecology and epidemiology of *Salmonella* spp. in central and northwestern Iowa organic swine operations.
- Evaluated hygiene practices of food service operations in Iowa school programs which impact food safety and quality.

**Visiting Scientist - 03/2001 – 12/2001**

**Institute for Inspection of Foods of Animal Origin, Faculty of Veterinary Medicine, University of Bari, Italy**

- Continued research on the microbiological quality of feta cheese produced in the southwestern region of Albania in close cooperation with the home institution in Tirana, Albania.
- Worked closely with public health officials and food safety officers to establish a framework for regional (Southern Europe) cooperation in food safety.

**Instructor and Research Associate - 08/1999 – 03/2001**

**Faculty of Veterinary Medicine, Agricultural University of Tirana, Albania**

- Conducted research on the microbiological quality of feta cheese produced in the southwestern region of Albania with special emphasis on incidence and control of *Brucella* spp.
- Managed the food hygiene laboratory. Trained and mentored veterinary and graduate students in food microbiology research.

**C. TEACHING RELATED ACTIVITIES**

**C.1. General Teaching Summary**

At the University of Wyoming I have taught the courses Food Microbiology (FDSC 4090/5090) and Food Microbiology Laboratory (FDSC 4100/5100) starting from Spring 2014, and Food Safety (FDSC 4900) starting from Fall 2015. I have also guest lectured for the following courses: Cell Signaling (ANSC 4061/5061), 1<sup>st</sup> Year Seminar (FDSC 1101), Food and Our Well Being (FDSC 1410), and Topics and Issues in Animal Science (ANSC 4630). My previous teaching experience starts from the fall of 1999 when I was responsible for developing and teaching the course ‘Meat and Packing Plant Hygiene’ to 4<sup>th</sup> year veterinary students at the Faculty of Veterinary Medicine, Agricultural University of Tirana until 2002. In 2003 and 2006, I served as teaching assistant for courses Food Processing and Food Microbiology Laboratory,

respectively, at Iowa State University. Between 2019 and 2013 I have been invited on a regular basis as a guest lecturer for the course ‘Meat Safety’ at Colorado State University. In 2012, I served as visiting professor for the course ‘Modern Laboratory Methods to Assess and Control the Safety of Global Foods’ at the International Summer University, Pristina, Kosovo.

## **C.2. Teaching Work History**

### **C.2.1 Teaching at the University of Wyoming**

#### **Food Microbiology, FDSC 4090/5090, 3 hrs, Instructor.**

- University of Wyoming, Laramie, WY
  - Course Description: Discusses microorganisms and theory of their growth and survival in relation to spoilage and preservation of foods and health hazards in foods. Dual listed with FDSC 5090; cross listed with MICR 4090. Prerequisite: MOLB 2210.

#### **Food Microbiology, FDSC 4100/5100, 1 hrs, Instructor.**

- University of Wyoming, Laramie, WY
  - Course Description: Lab techniques used in food microbiology. Dual listed with FDSC 5100; cross listed with MICR 4100. Prerequisite: FDSC 4090 or 5090, taken concurrently.

#### **Food Safety, FDSC 4900, 3 hrs, Instructor.**

- University of Wyoming, Laramie, WY
  - Course Description: Issue-oriented lecture/discussion course. Includes topics such as what is safe food, what makes food unsafe and how safety of a food is determined. Presents laws and regulations on food safety. In addition to a text, area experts are invited to discuss important issues. *Prerequisite:* 6 hours of biological science. (Offered fall semester of odd-numbered years)

#### **Cell Signaling, ANSC 4061/5061, 3 hrs, Guest Lecturer.**

- University of Wyoming, Laramie, WY
  - Course Description: Cell signaling pathways in animal growth and development. Defines how cells respond to external stimuli. Includes: G-protein couple signaling, calcium signaling, growth factor associated signaling, redox signaling, lipid related signaling, and apoptosis. Dual listed with ANSC 5061. *Prerequisites:* MOLB 3610 or an equivalent biochemistry or cell biology course.

#### **Feeding the Planet, First Year Seminar, FDSC1101, 3 hrs, Guest Lecturer.**



- University of Wyoming, Laramie, WY
  - Course Description: No description available.

**Topics and Issues in Animal Science, ANSC 4630, 3 hrs, Guest Lecturer.**

- University of Wyoming, Laramie, WY
  - Course Description: Writing-intensive course that focuses on writing projects related to current topics and issues in animal science. Emphasizes writing skills, strategies, information gathering and critical judgment. Assignments include short and long papers, resumes, letters of transmittal, and oral presentations. *Prerequisites:* senior standing and completion of WA and WB or COM1 and COM2 requirements. (Offered spring semester).

**Food and Our Well Being, FDSC 1410, 3 hrs, Guest Lecturer.**

- University of Wyoming, Laramie, WY
  - Course Description: Introductory course dealing with current questions and concerns about foods. Considers food composition, effects of food processing, food labeling, diet, degenerate diseases and general health. Students become familiar with foods and food industry. (Normally offered spring semester)

**C.2.2 Teaching at Other Institutions**

**Modern Laboratory Methods to Assess and Control the Safety of Global Foods, Course 19, 2 weeks, Visiting Professor.**

- University of Pristina, Pristina, Kosovo
  - Course Description: 21<sup>st</sup> century methods of analyses in the study of food safety in foods of global importance. The students will be instructed in modern methods to assess and investigate outbreaks of foodborne diseases, using real world examples of such outbreaks as teaching tools. The students will be introduced to methods to control pathogens in foods including HACCP and hurdle technology, and then will be able to experiment with what they have learned during hands-on, supervised laboratories that will allow them to see exactly how these methods are used during global food production methods used to actually control bacteria in foods. Where feasible, differences in food production methods used in different parts of the world (Europe, North America, Africa and Asia) will be discussed and emphasized. It is expected that upon completion of this course, students will be prepared to return to their country with enough experience to be employed in the food industry as food safety microbiologists.

**Meat Safety, ANEQ 460, 2 hrs, Invited Lecturer.**

- Colorado State University, Fort Collins, CO

- Course Description: Meat safety; food borne pathogens; hazard analysis critical control points (HACCP) and total quality management (TQM) practices.

**Food Microbiology Laboratory, FSHN 421, 2 hrs, Teaching Assistant.**

- Iowa State University, Ames, IA
  - Course Description: Standard techniques used for the microbiological examination of foods. Independent and group projects on student-generated questions in food microbiology. Emphasis on oral and written communication and group interaction.

**Food Processing, FSHN 472 (dual-listed with FSHN 572), 3 hrs, Teaching Assistant.**

- Iowa State University, Ames, IA
  - Course Description: Principles and applications of food processing by biological (fermentation, enzymes) and nontraditional (high pressure, irradiation, pulsed electric field) preservation methods. Includes packaging, waste water treatment, and sanitation.

**Meat and Packing Plant Hygiene, 3 hrs, Fall, 100%, Instructor.**

- Universiteti Bujqësor i Tiranës, Tirane, Albania
  - Course Description: Principles of meat and packing plant hygiene. Techniques for meat safety and quality inspection, including theoretical and practical aspects of bacteriology, parasitology, virology, and veterinary legislation pertaining food safety and public health. Open to 4<sup>th</sup> year veterinary students. Lectures, laboratory and field practices.

**D. PROFESSIONAL MEMBERSHIPS AND PARTICIPATION/HONOR SOCIETIES**

- American Society for Microbiology.
- International Association for Food Protection.
- American Dairy Science Association.
- Affiliate member of the High Plains Center for Intermountain Health and Safety.
- Participant NC1202 multistate project: Enteric Diseases of Food Animals: Enhanced Prevention, Control and Food Safety.
- Participant S-1077 multistate project: S-1077: Enhancing Microbial Food Safety by Risk Analysis.
- Sigma Xi, The Scientific Research Society.
- Gamma Sigma Delta, The Honor Society of Agriculture.

## **E. SERVICE**

### **E.1 Service at the University of Wyoming**

- Member of the Institutional Biosafety Committee (IBC), University of Wyoming (2017-2020).
- Chair of the Animal Science Department Graduate Committee (2017- ).
- Member of the Microbiology Steering Committee, University of Wyoming (2013- )
- Member of the Animal Science Department Search Committee for Department Accountant (2014 and 2017)
- Member of the Animal Science Department Search Committee for Ruminant Microbiology Faculty (2014)
- Member of the Animal Science Department Search Committee for Genomics Faculty (2014)

### **E.2 Service at the Regional, National or International Level**

- Editorial board *member Journal of Food Protection* (2017-2019).
- Editorial board member *Journal of Albanian Veterinary Society* (2017- ).
- Guest Editor, Special issue of *Microorganisms* (2018-2019).
- Guest Editor, Special issue of *Foods* (2018-2019).
- Ad hoc reviewer *BMC Veterinary Research* (2017- ).
- Ad hoc reviewer *Talanta* (2017- ).
- Ad hoc reviewer *Journal of Food Protection* (2017- ).
- Ad hoc reviewer *Animal Health Research Reviews* (2016- ).
- Ad hoc reviewer *Virulence* (2014- ).
- Ad hoc reviewer *Aquaculture Research* (2014- ).
- Ad hoc reviewer *Science of the Total Environment* (2014- ).
- Ad hoc reviewer *Journal of Visualized Experiments* (2014- )
- Ad hoc reviewer *Journal of Applied Microbiology* (2013- ).
- Ad hoc reviewer *Journal of Virological Methods* (2013- ).
- Ad hoc reviewer *Journal of AOAC International* (2013- ).
- Ad hoc reviewer *Professional Animal Scientist* (2013- ).
- Ad hoc reviewer *Tropical Medicine & International Health* (2013- ).
- Ad hoc reviewer *Food Microbiology* (2013- ).
- Ad hoc reviewer *Foodborne Pathogens and Disease* (2012- ).
- Ad hoc reviewer *Journal of Food Science* (2011- ).
- Ad hoc reviewer *Bacteriophage* (2011- ).
- Ad hoc reviewer *Applied and Environmental Microbiology* (2010- ).

- Affiliate member of the High Plains Intermountain Center for Agricultural Health and Safety (2013- )
- Grant reviewer for the Colorado – Bioscience Discovery Evaluation Grant Program
- Grant Reviewer for the State of Wisconsin Ground Water Research and Monitoring Grant Program
- Panel member at the 6<sup>th</sup> Annual Public Health Symposium on ‘Microbial Ecology on a Changing World: Emerging Issues in Antimicrobial Resistance’.
- Served as consultant and/or scientific advisor for the following companies:
  - AB Sciex Pte. Ltd.
  - CEVA Bioimmune.
  - Leprino Foods.
  - Vivione Biosciences.

## **F. ADVISING**

### **F.1. Graduate Students**

- Jennifer E. Anders, Master of Science in Animal and Veterinary Sciences, graduated Fall 2017 (Major professor).
- Sulaiman Aljasir, Master of Science in Animal and Veterinary Science, graduated Fall 2017 (Major professor).
- Codi Jo Broten, Doctor of Philosophy in Animal and Veterinary Sciences, projected graduation Fall 2020 (Major professor).
- Anthony Lombardo, Master of Science in Animal and Veterinary Sciences, projected graduation Fall 2020 (Major professor).
- Harneel Kaur, Master of Science in Animal and Veterinary Sciences, projected graduation Spring 2021 (Major professor).
- Bayar Saeed, Master of Science in Animal and Veterinary Sciences, graduated Spring 2014 (Graduate committee member).
- Pradeep Neupane, Master of Science in Animal and Veterinary Sciences, graduated Spring 2016 (Graduate committee member).
- Anthony Maus, Doctor of Philosophy in Chemistry, graduated Summer 2017 (Graduate committee member).
- Taylor Kraft, Master of Science in Food Science and Human Nutrition, graduated Summer 2018 (Graduate committee member).
- Matthew Peterson, Doctor of Philosophy in Biomedical Sciences, projected graduation Fall 2019 (Graduate committee member).

## **F.2. Postdoctoral Fellows**

- Dr. Jeffrey C. Chandler, University of Wyoming (2013 - 2015)

## **F.3. Undergraduate Research Students**

- Brenna Lindsey (2017-current).
- Chayse Rowley (2018-current).
- Paul Matthews (2018-current)
- Katherine Schwam, University of Wyoming (2016 - 2018).
- Ella DeWolf (2017-2018).
- Heather Rose (2017).
- Leslie Day (2016 - 2017).

## **F.4. Undergraduate Student Advisees**

- Ashton Abarr, BS in Animal and Veterinary Sciences.
- Thomas Boyd, BS in Animal and Veterinary Sciences (current).
- Joseph Kinchen, BS in Animal and Veterinary Sciences (current).
- Jeffrey Krall, BS in Microbiology (current).
- Loren McKenzie, BS in Microbiology (current).
- Amanda Mills, BS in Animal and Veterinary Sciences.
- Caitlyn Souza, BS in Animal and Veterinary Sciences.
- Yahsmin Gorji, BS in Animal and Veterinary Sciences.
- Vesta Moore, BS in Animal and Veterinary Sciences (current).
- Stanley Palma, BS in Animal and Veterinary Sciences.
- Katherine Aarts, BS in Animal and Veterinary Sciences (current).
- Rachel Wurzel, BS in Animal and Veterinary Sciences (current).
- Ian Anderson, BS in Animal and Veterinary Sciences (current).
- Brooke Bradac, BS in Animal and Veterinary Sciences (current).
- Justin Darnell, BS in Microbiology (current).
- Bailey Johnson, BS in Animal and Veterinary Sciences (current).
- Carbon Kennigton, BS in Animal and Veterinary Sciences (current).
- Sage Loecker, BS in Animal and Veterinary Sciences.

## **G. RESEARCH SUPPORT**

### **G.1. Current Research Support**

1. Role: PI.

Wyoming Water Research Center, Understanding the contribution of different microbial sources to surface water for informed management of water borne pathogens in Wyoming, 07/01/2019 - 07/01/2021. \$258,142.00.

2. Role: PI.

AB Sciex Pte. Ltd., Improvement and Validation of a Mass Spectrometry Method for Microbial Identification, 12/01/2017 - 12/01/2019. \$133,447.00.

3. Role: PI of Subaward.

National Institute of Food and Agriculture, A Low-Cost Pathogen Detection System for Food Safety, Phase II, 11/23/2016 - 08/31/2019. \$600,000.00 (UW funds: \$134,519.00).

4. Role: PI.

NIH-Wyoming INBRE, 2018-2019 Wyoming INBRE Graduate Assistantship, 08/29/2018-05/10/2019. \$26,200.00.

5. Role: Co-Lead.

National Science Foundation (NSF), RII Track-2 FEC: Genomics Underlying Toxin Tolerance (GUTT): Identifying molecular innovations that predict phenotypes of toxin tolerance in wild vertebrate herbivores, 09/01/2018 - 08/31/2022. \$6,000,000.00 (\$18,359.00 portion).

## **G.2. Completed Research Support**

6. Role: Co-PI.

Montana State University, The Prevalence and Impact of Mastitis in Western Sheep Flocks and Cost Effective Strategies to Diagnose, Treat, and Avoid its Occurrence, 08/14/2018-12/01/2018. \$20,000.00.

7. Role: Co-PI.

Wyoming Agricultural Experiment Station, Detection and Elimination of Listerial Exopolysaccharide, 01/02/2017 - 09/30/2018. \$41,697.00.

8. Role: PI.

INBRE Bioinformatics Core, University of Wyoming, Whole Genome Sequencing of Antimicrobial Resistant *Escherichia coli* from Livestock and Wildlife 01/20/2018 - 04/01/2018. \$10,000.00.

9. Role: PI.

AB Sciex Pte. Ltd., Validation of a Mass Spectrometry Method for Microbial Identification, 01/30/2017 - 12/31/2017. \$33,808.00.

10. Role: PI.

Wyoming Agricultural Experiment Station, Identification and Subtyping of Antimicrobial Resistant Bacteria from Cattle Feeding Operations and associated Wildlife Using Matrix-Assisted Laser Desorption Ionization Time-of-Flight Mass Spectrometry, 01/01/2014 - 09/30/2017. \$48,364.22.

11. Role: PI.

INBRE Bioinformatics Core, University of Wyoming, Whole Genome Sequencing of Antimicrobial Resistant (AMR) Bacteria from Livestock and Wildlife 01/20/2016 - 04/01/2016. \$10,000.00.

12. Role: PI of Subaward.

Center for Produce Safety, University of California, Davis, Contamination of Leafy Green Crops with Foodborne Pathogens: Are Wildlife a Problem? 01/01/2015 - 06/30/2016. \$198,162.26 (UW portion: \$97,858.00).

13. Role: Co-PI.

CDC/NIOSH, Bioaerosol Exposures and Models of Human Responses in Dairies and Cattle Feedlots 09/15/11 - 09/14/16. \$454,749.00 for the budget period 09/15/2013-09/14/2014 & \$271,204.00 for the budget period 09/15/2014-09/14/2015 (UW portion: \$0, \*Note: Initially, \$7,023.00 were allocated for UW but were not materialized due to delays in transferring the funds and other funding restrictions).

14. Role: Co-PI.

Colorado Bioscience Discovery Evaluation Grant Program (BDEGP), Modified Bioaerosol Sampling for Influenza Virus in Agricultural Environments, 01/04/2014 – 12/01/2015 (no cost extension through 12/31/2016), \$20,000.00 UW portion: \$0).

15. Role: PI of Subaward.

National Institute of Food and Agriculture, A Low-Cost Pathogen Detection System for Food Safety, 06/01/2015 - 01/31/2016. \$99,978.00 (UW portion: \$20,000).

16. Role: PI.

United States Department of Agriculture Animal and Plant Health Inspection Service, Matrix-Assisted Laser Desorption Ionization Time-of-Flight Mass Spectrometry (MALDI-TOF MS) for Rapid and Specific Identification and Typing of AMR Bacteria

from Samples Collected from Wild Mammals, Cattle Feces, and Water on Livestock Facilities, 09/30/2013 - 09/29/2015. \$56,753.40.

17. Role: PI.

CEVA Bioimmune, A flow cytometric assay for *Salmonella* vaccine stability monitoring: Assay development and laboratory validation, 10/15/2014 - 04/14/2015. \$29,600.94.

18. Role: Co-I.

Colorado School of Public Health, Multidisciplinary approaches to agricultural antimicrobial resistance and human health impacts, 11/15/2014 – 10/14/2015. \$19,998.00 (UW funds: \$300.00).

19. Role: PI.

High Plains Center for Agricultural Health and Safety (CDC/NIOSH), Modified Bioaerosol Sampling for Presence of Viruses in Agricultural Environments, 11/30/2013 - 09/14/2014. \$25,000.00.

20. Role: PI.

University of Wyoming Global Perspectives Grant Program, Travel Expenses to Establish a Research and Instruction Relationship with the Faculty of Agriculture and Veterinary Medicine, University of Prishtina, Kosovo, 06/30/2014 - 06/29/2015. \$3,368.00.

21. Role: Co-PI.

Colorado State Water Center, Characterizing Biological Pollutants in Agricultural Runoff at Colorado Dairies, 11/18/2013 – 05/15/2014. \$24,996.19 (UW funds: \$0).

22. Role: Co-PI.

Mountain and Plains ERC, Modeling and Predicting Microbiomes in Dairies: A Metagenomic Assessment of Bioaerosols, 07/01/2013 - 06/30/2014. \$17,500.00 (UW funds: \$4,456.00).

### **G.3. Unfunded Proposals**

23. Role: PI.

National Pork Board, A Method to Capture, and Enable Molecular Detection of the Influenza Virus from Bioaerosols in Swine Operations, 05/01/2014 - 04/30/2015. \$49,822.60.



24. Role: PI

Morris Animal Foundation, Addressing the Emergence of Antimicrobial Resistant Bacteria in Animals: Development and Optimization of MALDI-TOF MS Bacterial Characterization for Veterinary Applications, 07/01/2014 - 06/30/2016. \$76,000.00.

25. Role: PI

National Aeronautics & Space Administration, Exploring Bacteriophage-Based Signal Amplification for Detection of Microbial Products, 07/01/2014 - 06/30/2015. \$18,685.86.

26. Role: PI

Dept of Health/Human Serv-Centers for Disease Control, Technological Advancement in LAMP for STECs: Novel Probe Chemistries, 11/01/2014 - 09/14/2015. \$24,948.00.

27. Role: PI

University of Wyoming Faculty Grant-in-Aid, Diagnostics in Low Resource Settings: Coupling Paper-based Electrochemical Devices with Bioengineered Bacteriophages for Microbial Detection, 04/01/2014 - 12/30/2014. \$7,500.00.

28. Role: PI

University of Wyoming \$250,000 Grant Initiative, Control of Bacteriophage-Target Binding Interactions Using Modifiable Molecular Recognition Elements, 07/01/2014 - 06/30/2014. \$21,241.00.

29. Role: Co-PI.

National Institute of Food and Agriculture, Assessing The Role of Food Antimicrobials and Sanitizers in the Physiology and Evolution of *Escherichia coli* O157:H7 in a Simulated Food Production Environment, 10/01/2014 – 09/30/2016. \$149,958.00.

30. Role: PI of Subaward.

National Institute of Food and Agriculture, proposal 2014:00633: Simultaneous Detection of Microbial Pathogens in a Single Sample, 07/01/2014 – 06/30/2015. \$22,000.00.

31. Role: Co-PI.

Wyoming Agricultural Experiment Station, Phage-Bacteria Infection Metabolomics for Specific Pathogen Detection, 01/01/2015 - 12/31/2017.

32. Role: Co-PI.

Wyoming Agricultural Experiment Station, A Novel Mechanism Regulating Childhood Obesity-Induced Insulin Resistance and Cardiac Dysfunction, 1/01/2015 - 09/30/2017.

33. Role: Co-I.

National Institutes of Health, A Novel Mechanism Regulating Obesity-Induced Insulin Resistance and Cardiac Dysfunction, 1/01/2015 - 12/31/2019.

34. Role: PI

USDA Agriculture and Food Research Initiative, A Universal Approach to Integrating Sample Separation and Detection of Foodborne Pathogens, 01/01/2016 - 12/31/2018. \$500,000.

35. Role: PI.

Wyoming Agricultural Experiment Station, Determining the Potential Role of Wildlife in the Dissemination of Antimicrobial Resistant Bacteria to Fresh Produce with a Special Emphasis on *Salmonella enterica*, 01/01/2016 - 09/30/2018. \$90,000.00.

36. Role: PI.

USDA Agriculture and Food Research Initiative, Wildlife And Dissemination Of Antimicrobial Resistance in Produce: Evidence-Based Risk Evaluation And Strategic Mitigation, 02/01/2017 - 01/31/2021. \$1,199,928.00.

37. Role: Co-PI. National Cattlemen's Beef Association, Occupational Exposures and Transmission Pathways of Antibiotic-Resistant Bacteria in Beef Cattle Production, 08/01/2015 – 05/31/2016. \$165,603.00.

38. Role: PI.

USDA Agriculture and Food Research Initiative, Antimicrobial Resistance and Wildlife on Livestock Production Landscapes: Developing Intervention Strategies for an Emerging Problem, 02/01/2018 - 01/31/2022. \$1,199,942.00.

39. Role: Co-PI.

USDA Agriculture and Food Research Initiative, An Integrated Approach to Assist Producers of Raw Agricultural Commodities Meeting the Water Requirements of FSMA, 02/01/2018 - 01/31/2022. \$3,564,125.00 (UW funds: \$544,712.00).

40. Role: Co-PI.

USDA Agriculture and Food Research Initiative (USDA-AFRI), Wildlife as Environmental Reservoirs for Antimicrobial Resistance: Potential Threat to Agricultural and Human Health at the Wildlife- Agricultural Interface, 02/01/2019 - 01/31/2021. \$497,687.00.

#### **G.4. Pending Research Support**

41. Role: PI of Subaward.

National Institute of Food and Agriculture (USDA-NIFA), A Simple, Low-cost Bacterial Enumeration Product for Food Safety and Quality Testing, 02/01/2019 - 09/30/2019. \$28,300.00.

## **H. PUBLICATIONS**

### **H.1. Peer-reviewed Journal Articles**

1. Kraft TB, **Bisha B**, Larson-Meyer E, Griebel A. 2018. The impact of daily kimchi consumption on irregular gastrointestinal symptoms and consumer acceptability. *Journal of Nutrition Education and Behavior* (submitted).
2. Guo R, Nair S, Smith D, **Bisha B**, Nair R, Downs BW, Kushner S, Bagchi M. 2018. Safety and Efficacy of N-SORB® a Proprietary KD120 MEC Metabolically-Activated Enzyme Formulation: A Randomized, Double-Blind, Placebo-Controlled Study. *Journal of the American College of Nutrition* (submitted).
3. Schaeffer JW, Chandler JC, Davidson M, Magzamen SL, Pérez-Méndez A, Reynolds SJ, Goodridge LD, Volckens J, Franklin AB, Shriner SA, **Bisha B**. 2018. Detection of viruses from bioaerosols using anion exchange resin. *Journal of Visualized Experiments*. 22;(138). doi: 10.3791/58111.
4. Chandler JC, Aljasir SF, Hamidi A, Sylejmani D, Gerow K, **Bisha B**. 2018. A country-wide survey of antimicrobial resistance in Kosovo's dairy farms. *Journal of Dairy Science*. 101(8):6982-6989. doi: 10.3168/jds.2017-14091.
5. Cadieux B, Colavecchio A, Jeukens J, Freschi L, Edmond-Rheault JG, Kukavica-Ibrulj I, Levesque RC, Bekal S, Chandler JC, Coleman SM, **Bisha B**, Goodridge LD. 2018. Prophage induction reduces Shiga toxin producing *Escherichia coli* (STEC) and *Salmonella enterica* on tomatoes and spinach: a model study. *Food Control*. 246:38-41. <https://doi.org/10.1016/j.foodcont.2018.02.001>.

6. Chandler JC, Schaeffer J, Davidson M, Magzamen S, Pérez-Méndez A, Reynolds S, Goodridge L, Volckens J, Franklin A, Shriner S, **Bisha B**. 2017. A Method for the improved detection of aerosolized influenza viruses and the male-specific (F+) RNA coliphage MS2. *Journal of Virological Methods*. 246:38-41. doi: 10.1016/j.jviromet.2017.04.004.
7. Coleman SM, **Bisha B**, Bunning M, Newman S, Goodridge LD. 2017. Transmission and persistence of *Salmonella* spp. in nutrient solution of hydroponic grown tomatoes. *Hortscience*. 52(5):713–718. 2017. doi: 10.21273/HORTSCI11200-16.
8. Adkins J, Boehle K, Friend C, Chamberlain B, **Bisha B**, Henry C. 2017. Colorimetric and electrochemical bacteria detection using printed paper- and transparency-based analytic devices. *Analytical Chemistry*. 21;89(6):3613-3621. doi: 10.1021/acs.analchem.6b05009.
9. Chandler JC, Pérez-Méndez A, Paar J, Doolittle MM, **Bisha B**, Goodridge LD. 2017. Field-based evaluation of a male-specific (F+) RNA coliphage concentration method. *Journal of Virological Methods*. 239:9-16.
10. Harris LJ, Lieberman V, Mashiana RP, Atwill E, Yang M, Chandler JC, **Bisha B**, Jones T. 2016. Prevalence and amounts of *Salmonella* found on raw California inshell pistachios. *Journal of Food Protection*. 79 (8):1304-1315.
11. Johnson DC, Bzdek JP, Fahrenbruck CR, Chandler JC, **Bisha B**, Jones T. 2016. An innovative non-thermal plasma reactor to eliminate microorganisms in water. *Desalination and Water Treatment*. 57 (18):8097-8108.
12. **Bisha B**, Brehm-Stecher BF. 2015. Flow cytometry for rapid detection of *Salmonella* spp. in seed sprouts. *ScienceOpen Research*. doi: 10.14293/S2199-1006.1.SOR-LIFE.AJ19WR.v1.
13. Pérez-Méndez A, Chandler JC, **Bisha B**, Goodridge LD. 2014. Concentration of enteric viruses from tap water using an anion exchange resin-based method. *Journal of Virological Methods*. 206:95-98.
14. **Bisha B**, Adkins JA, Jokerst JC, Chandler JC, Pérez-Méndez A, Coleman SM, Sbodio AO, Suslow TV, Danyluk MD, Henry CS, and Goodridge LD. 2014. Colorimetric paper-based detection of *Escherichia coli*, *Salmonella* spp., and *Listeria monocytogenes* from large volumes of agricultural water. *Journal of Visualized Experiments*. 9;(88). doi: 10.3791/51414.

15. Pérez-Méndez A, Chandler JC, **Bisha B**, Goodridge LD. 2014. Evaluation of an anion exchange resin-based method for concentration of F-RNA coliphages (enteric virus indicators) from water samples. *Journal of Virological Methods*. 204:109-115.
16. Perez-Mendez A, Chandler JC, **Bisha B**, Coleman S, Zhanqiang S, Gang Y, Goodridge LD. 2013. Evaluation of a simple and cost-effective filter paper-based shipping and storage medium for environmental sampling of F-RNA coliphages. *Journal of Virological Methods* 194 (1-2): 60-66.
17. Jokerst JC, Adkins JA, **Bisha B**, Mentele MM, Goodridge LD, Henry CS. 2012. Development of a paper-based analytical device for colorimetric detection of select foodborne pathogens. *Analytical Chemistry* 84(6): 2900-2907.
18. **Bisha B**, Simonson J, Janes M, Bauman K, Goodridge LD. 2012. A review of the current status of cultural and rapid detection of *Vibrio parahaemolyticus*. *International Journal of Food Science and Technology* 47(5): 885–899.
19. Lihono MA, Mendonca AF, **Bisha B**, Bankston LT, Boylston TD. 2012. Efficacy of selected probiotic cultures to inhibit *Enterobacter sakazakii* ATCC 12868 in model reconstituted dairy products. *International Journal of Food Safety, Nutrition and Public Health* 4(2/3/4): 205-213.
20. **Bisha B**, Perez-Mendez A, Danyluk M, Goodridge LD. 2011. Evaluation of modified Moore swabs and continuous flow centrifugation for concentration of *Salmonella* spp. and *Escherichia coli* O157:H7 from large volumes of water. *Journal of Food Protection* 74(11):1934-1937.
21. Goodridge LD, **Bisha B**. 2011. Phage-based biocontrol strategies to reduce foodborne pathogens in foods. *Bacteriophage* 1(3): 1-8.
22. Pittman C, Pendleton S., **Bisha B**, O'Bryan C, Belk K, Goodridge L, Crandall P, Ricke S. 2011. Activity of citrus essential oils against *Escherichia coli* O157:H7 and *Salmonella* spp. and effects on beef subprimal cuts under refrigeration. *Journal of Food Science* 76(6): M433-438.
23. Willford JD, **Bisha B**, Bolenbaugh KE, Goodridge LD. 2011. Luminescence based enzyme-labeled phage (Phazyme) assays for rapid detection of shiga toxin producing *Escherichia coli* serogroups. *Bacteriophage* 1(2): 1-10.

24. **Bisha B**, Kim HJ, Brehm-Stecher BF. 2011. Improved DNA-FISH for cytometric detection of *Candida* spp. *Journal of Applied Microbiology* 110(4):881-892.
25. **Bisha B**, Brehm-Stecher BF. 2010. Combination of adhesive-tape-based sampling and fluorescence in situ hybridization for rapid detection of *Salmonella* on fresh produce. *Journal of Visualized Experiments* 18:(44). pii: 2308. doi: 10.3791/2308. (Invited paper).
26. Lantz AW, **Bisha B**, Tong MY, Nelson RE, Brehm-Stecher BF, Armstrong DW. 2010. Rapid identification of *Candida albicans* in blood by combined capillary electrophoresis and fluorescence in situ hybridization. *Electrophoresis* 31(16):2849-2853.
27. **Bisha B**, Weinsetel N, Brehm-Stecher BF, Mendonca A. 2010. Antilisterial effects of gravinol-s grape seed extract at low levels in aqueous media and its potential application as a produce wash. *Journal of Food Protection* 73(2):266-273.
28. **Bisha B**, Brehm-Stecher BF. 2009. Flow-through imaging cytometry for characterization of *Salmonella* subpopulations in alfalfa sprouts, a complex food system. *Biotechnol Journal* 4(6):880-887. (Invited paper).
29. **Bisha B**, Brehm-Stecher BF. 2009. Simple adhesive-tape-based sampling of tomato surfaces combined with rapid fluorescence in situ hybridization for *Salmonella* detection. *Applied and Environmental Microbiology* 75(5):1450-1455.
30. Olds DA, Mendonca AF, Sneed J, **Bisha B**. 2006. Influence of four retail food service cooling methods on the behavior of *Clostridium perfringens* ATCC 10388 in turkey roasts following heating to an internal temperature of 74 degrees C. *Journal of Food Protection* 69(1):112-117.
31. Bijo B, **Bisha B**. 2000. HACCP-A practical approach. *Albanian Journal of Natural & Technical Sciences* 9:147-152.

## **H.2. Book Chapters**

1. **Bisha B**, Goodridge L. 2012. Nucleic acid-based methods for detection of foodborne pathogens. In Taormina PJ (ed.), *Microbiological Research and Development for the Food Industry*, Taylor & Francis, Inc., New York, N.Y.
2. **Bisha B**, Goodridge L. 2012. Alternative methods for rapid whole-cell detection of *Salmonella* spp. In Monte AS and De Santos PE. (eds.), *Salmonella: Classification, Genetics and Disease Outbreaks*, Nova Science Publishers Inc., Hauppauge, New York, NY.

3. Goodridge L, **Bisha B**. 2011. Chromogenic and accelerated cultural methods. In Hoorfar J. (ed.), *Rapid Detection, Characterization, and Enumeration of Foodborne Pathogens*, ASM Press, Washington, D.C.

### **H.3. Conference Articles**

1. Jokerst JC, Adkins JA, **Bisha B**, Mentele MM, Goodridge LD, Henry CS. 2011. A paper-based analytical device for the colorimetric detection of foodborne pathogenic bacteria. 978-0-9798064-4-5/ $\mu$ TAS 2011:2116-2118.
2. Mendonca AF, **B Bisha**, Sebranek JG, Zhu M, Ahn DU. 2003. Control of *Listeria monocytogenes* in Ready-to-eat Turkey Meat Products. *Proceedings of the Midwest Poultry Conference*. St. Paul, MN, (April, 2003).
3. Goodridge L, Roberts B, **Bisha B**. 2011. Evaluation of a Low Cost Treatment System for Recycled Greywater Use In Irrigation of Produce. *ASHS Annual Conference*. Baltimore, MD, (September, 2011). *Supplement to HortScience*, Volume 46(9) September 2011.
4. Goodridge L, **Bisha B**, Danyluk M, Griffiths M, LeJeune J, Schaffner D, Suslow T. 2011. Concentration of Large Volumes of Irrigation Water Facilitates Sensitive Detection of Foodborne Pathogens II. *ASHS Annual Conference*. Palm Desert, CA, (August 2010). *Supplement to HortScience*, Volume 45(8) August 2010.
5. Goodridge L, Leon J, **Bisha B**, Danyluk M, Griffiths M, LeJeune J, Schaffner D, Suslow T. 2011. Antimicrobial Incorporated Multi-angle Light Scattering Spectroscopy (ANIMALS) Facilitates Detection of Escherichia coli O157:H7 in Large Volumes of Irrigation Water. *ASHS Annual Conference*. Palm Desert, CA, (August 2010). *Supplement to HortScience*, Volume 45(8) August 2010.

### **H.4. Popular Articles**

1. **Bisha B**. 2017. Cutting-edge tech traces food contamination to its sources. 2017. *Reflections Magazine* (College of Agriculture and Natural Resources Research Report).
2. Anders J, Chandler J, Carlson J, LeJeune L, Goodridge L, Wang B, Day L, Mangan A, Reid D, Coleman S, **Bisha B**. 2018. Antimicrobial resistant *E. coli* from European starlings in concentrated animal feeding operations. *2018 Field Days Bulletin* (Wyoming Agricultural Experiment Station).

## I. SELECT PRESENTATIONS AND PUBLISHED ABSTRACTS

1. **Bisha B.** Microbial Diagnostics and Characterization for Produce Safety. Department of Horticulture & Landscape Architecture Seminar Series, Colorado State University. February 12, 2019, Ft. Collins, CO (invited talk).
2. **Bisha B.** Source Tracking, Typing, and Field-Based Diagnostics. Symposium: What Does the Future Hold for Produce – The Innovation Frontier. November 30, 2018, Ft. Collins, CO (invited talk).
3. **Bisha B.** Food Safety Interventions. Wyoming Wool Growers association – Summer Meeting. August 7, 2018, Laramie, WY.
4. Aljasir S, Chandler J, Franklin A, Bevins S, Bentler K, Ellis J, Broten CJ, Bisha, **Bisha B.** Low Levels of Antimicrobial Resistance Among Indicator Bacteria Isolated from Wildlife Associated with Produce Fields. International Association for Food Protection Annual Meeting. July 8 - July 11, 2018, Salt Lake City, UT.
5. Chandler J, Blouin N, Bono J, Franklin A, Goodridge L, Root J, Shriner S, **Bisha B.** Genetic Context of Antimicrobial-Resistant *Escherichia coli* at the Livestock-Wildlife Interface. International Association for Food Protection Annual Meeting. July 8 - July 11, 2018, Salt Lake City, UT.
6. Broten CJ, Wydallis JB, Reilly T III, **Bisha B.** Colorimetric Detection of *Cronobacter sakazakii* in Artificially Contaminated Powdered Infant Formula Using Microfluidic Paper-Based Analytical Devices. International Association for Food Protection Annual Meeting. July 8 - July 11, 2018, Salt Lake City, UT.
7. Anders J, Chandler J, Carlson J, LeJeune J, Goodridge L, Wang B, Day L, Mangan A, Reid D, Coleman S, **Bisha B.** Antimicrobial Resistance Profiles of *Escherichia coli* from European Starlings (*Sturnus vulgaris*) Associated with Concentrated Animal Feeding Operations International Association for Food Protection Annual Meeting. July 8 - July 11, 2018, Salt Lake City, UT.
8. Colavecchio A, Joseph S, Zhong Z, Zahirovich-Jovich Y, Coleman S, Chandler J, **Bisha B.** Perez-Mendez A, McEgan R, Danyluk M, Probasco K, Marshall D, Jeukens J, Freschi L, Emond Rheault J, Hamel J, Kukavica-Ibrulj I, Levesque R, Goodridge LD. A Comparison of In Silico Methods to Serotype *Salmonella enterica* Isolates from Food and Agricultural Environments. International Association for Food Protection Annual Meeting. July 8 - July 11, 2018, Salt Lake City, UT.
9. **Bisha B.** Colorimetric and Electrochemical Bacteria Detection Using Printed Paper- and Transparency-Based Analytic Devices. Fifth Annual Rapid Detection for Food Safety Conference, June 27, 2018, Bethesda, MD (invited talk).



10. Chandler J, Schaeffer J, Davidson M, Magzamen S, Perez-Mendez A, Reynolds S, Goodridge L, Volckens J, Franklin A, Shriner S, **Bisha B**. A Method for the Improved Detection of Aerosolized Influenza Viruses Using Impingers that Incorporate Anion Exchange Resin. International Association for Food Protection Annual Meeting. July 9 - July 12, 2017, Tampa, FL.
11. **Bisha B**. Exploring Alternative Tools for Diagnostics and Characterization of Foodborne Pathogens. Colorado State University, Department of Food Science and Human Nutrition Seminar Series, November 9, 2017, Ft. Collins, CO (invited talk).
12. Aljasir S, Chandler J, Hamidi A, Sylejmani D, Wang B, Schwam K, **Bisha B**. A Survey of Antimicrobial Resistance among Dairy Cattle in Kosovo. International Association for Food Protection Annual Meeting. July 9 - July 12, 2017, Tampa, FL.
13. **Bisha B**. Small Things Considered: From Bioaerosols to Microfluidics. Iowa State University, Department of Food Science and Human Nutrition Seminar Series, March 29, 2017, Ames, IA (invited talk).
14. **Bisha B**. Paper-Based Analytical Devices for Detection of Foodborne Bacteria. Third Annual Rapid Detection for Food Safety Conference, June 27 - 28, 2016, Baltimore, MD (invited talk).
15. Chandler J, Franklin A, Shriner S, Root J, Anders J, Wang B, **Bisha B**. Synanthropic Wildlife Associated with Livestock Production as Carriers of High Priority Antimicrobial Resistances. International Association for Food Protection Annual Meeting. July 31 - August 3, 2016, St. Louis, MO.
16. Anders J, Wang B, Chandler C, Prenni J, Franklin A, Carlson J, LeJeune J, **Bisha B**. MALDI-TOF MS Biotyping in the Characterization of Antimicrobial-resistant *Enterococcus* spp. from Wildlife Associated with Concentrated Animal Feeding Operations. International Association for Food Protection Annual Meeting. July 31 - August 3, 2016, St. Louis, MO.
17. Maus A, Anders J, **Bisha B**, Basile F. Differentiation of Bacteria at the Strain Level by MALDI-MS of Proteins >15kDa. 64<sup>th</sup> American Society for Mass Spectrometry Annual Conference. June 5 – June 9, 2016, San Antonio, TX.
18. Anders J, Wang B, Chandler J, Prenni J, Franklin A, Carlson J, LeJeune J, **Bisha B**. MALDI-TOF MS Biotyping for Characterization of Antimicrobial-resistant *Escherichia coli* from Concentrated Animal Feeding Operations and Associated Wildlife. International Association for Food Protection Annual Meeting. July 25 - July 28, 2015, Portland, OR.

19. Coleman S, Kessler H, He X, Avens J, Chandler J, **Bisha B**, Goodridge L, Bunning M. Evaluation of Consumer Washing Techniques to Reduce Natural Microbiota on the Surface of Whole Cantaloupes. International Association for Food Protection Annual Meeting. July 25 - July 28, 2015, Portland, OR.
20. Chandler J, Davidson M, Schaeffer J, Perez-Mendez A, Volckens J, Magzamen S, Goodridge L, Reynolds S, **Bisha B**. Development of an Improved Sampling Method for Concentrating Viruses from Bioaerosols. International Association for Food Protection Annual Meeting. July 25 - July 28, 2015, Portland, OR.
21. Franklin A, Shriner S, Root J, **Bisha B**, Chandler J. The Role of Wildlife in Disseminating Antibiotic-resistant Bacteria to and from Livestock Facilities. 3<sup>d</sup> International Symposium on the Environmental Dimension of Antibiotic Resistance. May 17 - May 21, 2015, Wernigerode, Germany.
22. **Bisha B**. Antimicrobial Resistance: Food Safety. Microbial Ecology in a Changing World: Emerging Issues in Antimicrobial Resistance. The 6<sup>th</sup> Annual Public Health Symposium at Colorado State University. April 15, 2015, Fort Collins, CO.
23. Saed B, Mills K, O'Toole D, Schumaker B, **Bisha B**, Legreid W. An Improved Primer Set for the Genotyping of *Clostridium perfringens*. American Association of Veterinary Laboratory Diagnosticians (AAVLD) 57<sup>th</sup> Annual Meeting. October 16 – October 22, 2014, Kansas City, MO.
24. **B Bisha**. Food Safety: Rapid Diagnostics and Typing. Student American Veterinary Association (SAVMA) Annual Symposium. March 20 - March 22, 2014, Fort Collins/Loveland, CO.
25. **B Bisha**. Food Safety: Rapid Diagnostics and Typing. University of Prishtina International Summer University. July 7 - July 18, 2014, Pristina, Kosovo.
26. **Bisha B**. Control of the Microbial Quality of Cantaloupes via Employment of a Processing Line Incorporating Chlorine Dioxide as an Intervention Step. Food Safety Update for Cantaloupe Growers: What do the new developments mean to me? April 17, 2014, Gulf Coast Research & Education Center, Wimauma, FL.
27. Edwards JL, **Bisha B**, Fisher S, Van Campen H, Kendall LV. Development of a Multiplex Bead-Based Array Protocol for Determination of Positive Sera for Select Feline Viruses. P174. American Association for Laboratory Animal Science (AALAS) National Meeting. October 19- October 23, 2014, San Antonio, TX.
28. Perez-Mendez A, Chandler J, **Bisha B**, Coleman S, Goodridge L. Rapid Resin-based Method for Concentration of Rotavirus, Hepatitis A Virus and Adenovirus 40 from Tap

Water. P1-643. International Association for Food Protection Annual Meeting. July 31-August 3, 2014, Indianapolis, IN.

29. Coleman S, **Bisha B**, Blume K, Sandoval V, Drury N, Kessler H, Perez-Mendez A, Chandler, Franz B, Jaebker R, Schaffner D, LeJeune J, Bunning M, Newman S, Goodridge L. Evaluation of Risk Factors Affecting Transmission and Persistence of *Salmonella* spp. in Hydroponically Grown Tomatoes. P1-118. International Association for Food Protection Annual Meeting. July 31- August 3, 2014, Indianapolis, IN.
30. Chandler J, Perez-Mendez A, Coleman S, Manley W, Danyluk M, Bunning M, Goodridge L, **Bisha B**. Control of the Microbial Quality of Cantaloupes via Employment of a Processing Line Incorporating Chlorine Dioxide as an Intervention Step. P1-109. International Association for Food Protection Annual Meeting. July 31- August 3, 2014, Indianapolis, IN.
31. Krause L, Reynolds S, Schaeffer J, VanDyke A, Davidson M, **Bisha B**. Evaluation of Bacterial Preservation During Air Sampling of Culturable Bioaerosols. The American Industrial Hygiene Conference & Exposition (AIHce). May 31- June 5, 2014, San Antonio, TX.
32. VanDyke-Gonnerman A, Reynolds S, Davidson M, Schaeffer J, **Bisha B**, Delton Hanson J. Effect of Environmental Factors on Isolation and Identification of Potential Pathogenic Species of Bacteria and Fungi from Bioaerosols in Three Dairy Parlors. The American Industrial Hygiene Conference & Exposition (AIHce). May 31- June 5, 2014, San Antonio, TX.
33. Perez-Mendez, A., Chandler, J. C., Paar, J., Doolittle, M., Bouthiette, E., **Bisha, B.**, Coleman, S.M, Goodridge, L.D. 2013. Validation of a Rapid Resin-Based Method for Concentration and Further Detection of F-RNA Coliphages in Different Water Sources of the New England Region. *American Society for Microbiology, 113th General Meeting*. May 18-21, 2013, Denver, CO.
34. Davidson, M., **Bisha, B.**, Reynolds, S.J., Goodridge, L.D. 2013. Evaluation of the NIOSH BC-251 Personal Bioaerosol Sampler for Sampling Viable and Culturable Pathogenic Bacteria. *AIHce 2013*, May 18-23, 2013, Montreal, Canada.
35. **Bisha B**, Jokerst J, Adkins J, Coleman S, Chandler J, Perez-Mendez A, Henry C, Goodridge L. 2012. Colorimetric Paper-based Detection of *Salmonella* spp. and *Escherichia coli* from Artificially Contaminated Irrigation River Water. *International Association for Food Protection Annual Meeting*. July 22-25, 2012, Providence, RI.

36. Coleman S, **Bisha B**, Chandler J, Perez-Mendez A, Goodridge L. 2012. Simple Filter Paper as a Shipping and Storage Medium for Human Enteric Viruses. *International Association for Food Protection Annual Meeting*, July 22-25, 2012, Providence, RI.
37. Chandler J, Perez-Mendez A, **Bisha B**, Coleman S, Goodridge L. 2012. The *Escherichia coli* Common Pilus: A Diagnostic Target for Point-of-Need LAMP Assays Detecting the Fecal Indicator *E. coli*. *International Association for Food Protection Annual Meeting*. July 22-25, 2012, Providence, RI.
38. Perez-Mendez A, Chandler J, **Bisha B**, Coleman S, Goodridge L. 2012. Simple Filter Paper as a Shipping and Storage Medium for Human Enteric Viruses. *International Association for Food Protection Annual Meeting*. July 22-25, 2012, Providence, RI.
39. Adkins JA, Jokerst JC, **Bisha B**, Goodridge LD, Henry CS. 2012. Foodborne Pathogenic Bacteria Detection on Paper-Based Analytical Devices. *PITTCON Conference and Expo*. March 11-15, 2012, Orlando, FL.
40. Perez-Mendez, A., **Bisha, B.**, Chandler, J., M. A. Gutierrez, M.A., Wong, C.-I., Hsu, F.-C., Janes, M., Goodridge, L.D. 2012. Rapid Concentration and Detection of Enteric Virus Indicators in Seawater. *American Society for Microbiology, 112th General Meeting*. June 16-19, 2012, San Francisco, CA.
41. Goodridge L, Roberts B, **Bisha B**. Evaluation of a Low Cost Treatment System for Recycled Greywater Use In Irrigation of Produce. *American Society for Horticultural Science Annual Conference*. September 25-28, 2011, Waikoloa, HI.
42. Jokerst JC, Adkins JA, **Bisha B**, Mentele MM, Goodridge LD, Henry CS. 2011. A paper-based analytical device for the colorimetric detection of foodborne pathogenic bacteria. *The 15<sup>th</sup> International Conference on Miniaturized Systems for Chemistry and Life Sciences*. October 2-6, 2011, Seattle, WA.
43. Roberts B, **Bisha B**, Bruun K, Fialko K, Goodridge LD. Evaluation of a Portable, Recycled Vertical Flow Constructed Wetland as a Low Cost Treatment System for Greywater Reuse in Food Production. *International Association for Food Protection Annual Meeting*. July 31-August 3, 2011, Milwaukee, WI.
44. Woo D, Stone M, Goodridge L, **Bisha B**, Bunning M. Microbial Quality of Mixed Salad Greens Purchased from Farmers' Market Vendors and a Retail Grocer. *IFT Annual Meeting & Food Expo*. June 11-14, 2011, New Orleans, LA.

45. Pittman C, Pendleton S., **Bisha B**, O'Bryan C, Belk K, Goodridge L, Crandall P, Ricke S. Validation of Citrus Essential Oils to Control Foodborne Pathogens on Beef Carcasses. *IFT Annual Meeting & Food Expo*. June 11-14, 2011, New Orleans, LA.
46. Goodridge L, **Bisha B**, Reynolds S. 2011. Rapid Detection of Bacteria Isolated from Agricultural Dust Samples: A Comparison of Methods. *American Society for Microbiology Annual Meeting*. May 23-27, 2011, New Orleans, LA.
47. Goodridge L, Leon JC, **Bisha B**, Danyluk M, Griffiths M, Lejeune J, Schaffner D, Suslow T. 2010. Antimicrobial Incorporated Multi-Angle Light Scattering Spectroscopy (ANIMALS) Facilitates Detection of *Escherichia coli* O157:H7 in Large Volumes of Irrigation Water. *American Society for Horticultural Science Annual Conference*. August 2-5, 2010, Palm Desert, CA.
48. Goodridge L, **Bisha B**, Danyluk M, Griffiths M, Lejeune J, Schaffner D, Suslow T. 2010. Concentration of Large Volumes of Irrigation Water Facilitates Sensitive Detection of Foodborne Pathogens II. *American Society for Horticultural Science Annual Conference*. August 2-5, 2010, Palm Desert, CA.
49. Pittman CI, **Bisha B**, Goodridge L, Adler JM, Geornaras I, Sofos JN, Woerner DR, Kendall PA, Belk KE. 2010. Evaluation of commercially available compounds for antimicrobial intervention of sub-primal beef and pork. *American Meat Science Association Reciprocal Meat Conference*. June 20-23, 2010, Lubbock, TX.
50. **Bisha B**, Leon JC, Deshpande S, Goodridge LD. 2010. Rapid Detection of Viable *Escherichia coli* O157:H7 in Irrigation Water by Antimicrobial Incorporated Multi-Angle Light Scattering Spectroscopy. *American Society for Microbiology Annual Meeting*. May 23-27, 2010, San Diego, CA.
51. Brehm-Stecher BF, **Bisha B**. 2009. Improved Conditions for Rapid Cytometric Detection of *Candida albicans* in Blood. *American Society for Microbiology Annual Meeting*. May 17-21, 2009, Philadelphia, PA.
52. **Bisha B**, Brehm-Stecher BF. 2009. Washing and Enrichment of Jalapeño Peppers Using Small Volumes of Non-selective Broth Facilitates Rapid Cytometric Detection of *Salmonella* Saintpaul. *International Association for Food Protection Annual Meeting*. July 12-15, 2009, Grapevine, TX.

53. Brehm-Stecher BF, **Bisha B**. Pulsification Enhances Direct Cytometric Detection of *Listeria monocytogenes* on Pork Frankfurters. *American Society for Microbiology Annual Meeting*. June 1-5, 2008, Boston, MA.
54. **Bisha B**, Brehm-Stecher BF. 2008. Combined Circulating Immunomagnetic Separation and Fluorescence *in situ* Hybridization for Selective Capture, Concentration and Visual Molecular Identification of *Salmonella* in Peanut Butter. *American Society for Microbiology Annual Meeting*. June 1-5, 2008, Boston, MA.
55. **Bisha B**, Brehm-Stecher BF. 2008. Tape-FISH for *Salmonella*: Simple Adhesive Tape-based Sampling of Tomato Surfaces Coupled with a Rapid Culture-independent Detection Step. *United Fresh Annual Convention*. May 2008, Las Vegas, NV.
56. **Bisha B**, Brehm-Stecher BF. 2007. Rapid Cytometric Detection of *Salmonella* and *Listeria monocytogenes* in Pork Products. *American Society for Microbiology Annual Meeting*. May 21-25, 2007, Toronto, ON, Canada.
57. **Bisha B**, Brehm-Stecher BF. 2007. Rapid Detection of *Salmonella* spp. in Seed Sprouts via Flow Cytometry. *United Fresh Annual Convention*. April 25-28, 2007, Palm Springs, CA.
58. **Bisha B**, Brehm-Stecher BF. 2006. Evaluation of Sample Preparation Methods for Use in Cytometric Detection of Foodborne Pathogens. *Food Safety Consortium Annual Meeting*. October 2-3, 2006, Fayetteville, AR.
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