

## Shijina Raj Manjankattil Rajan, Ph.D.

[LinkedIn](#) || [Google Scholar](#)

449 N Donahue Dr, Apt B11, Auburn, AL - 36832

E-mail: [szr0141@auburn.edu](mailto:szr0141@auburn.edu) || Phone: +1 (753) 357-0249

### EDUCATION:

<i>Ph.D. in Animal Science</i> – University of Minnesota, Twin Cities	Sep 2020 - Aug 2023
<i>M.S. in Animal Science</i> – University of Minnesota, Twin Cities	Sep 2017 - May 2020
<i>Post Graduate Certificate in One Health</i> Kerala Veterinary & Animal Sciences University, India.	Jan 2015 - Jul 2015
<i>BVSc &amp; AH (Equivalent to DVM)</i> Kerala Veterinary & Animal Sciences University, India.	2009 - 2015

### RESEARCH EXPERIENCE:

<i>Postdoctoral Fellow</i> , Poultry Science Department, Auburn University Designing and conducting research on “Production and Processing Intervention Strategies for Poultry Associated Foodborne Pathogens” under USDA ARS funding	Sep 2023 - present
<i>Graduate Research Assistant</i> , Interventional Food Safety Microbiology Laboratory, Department of Animal Science, University of Minnesota. Conducted challenge studies in broiler chickens; assisted in euthanasia, necropsy, and sample collection; trained in DNA extraction from cecal samples; worked with phytophenolics and essential oils in poultry processing	Sep 2017 - Aug 2023
<i>Microbiology Intern</i> , Food Safety & Quality Assurance Team, Ocean Spray Inc., Massachusetts Designing and conducting experiments on interventions reducing bacterial spores, yeast and mold in sauces and juices under GMP, working independently based on standard operating procedures (SOP) and GLP, Record keeping and lab notebook maintenance, Group project – Employee value proposition- to support on boarding process, Trained on food safety and regulations, HACCP, CCP, FSMA, and nutrition and regulatory affairs in beverage processing	Jun 2022 - Sep 2022
<i>Research Assistant</i> , Poultry and Duck Farm, Kerala Veterinary and Animal Sciences University, India. Semen collection and artificial insemination in ducks; vaccination of ducks, turkeys, and chickens; hatchery and brooding management; avian disease diagnosis management	Sep 2015 - Nov 2016

### TEACHING EXPERIENCE:

<i>Teaching Assistant</i> – ANSC 3555/5555 Applied Livestock & Poultry Microbiology Preparing teaching materials including notes, videos and presentations for theory and lab, preparing exam questions, grading assignments, Teaching both theory and practical classes	Jan 2022 - May 2022
<i>Teaching Assistant</i> – ANSC1201 Backyard Chickens - Science and Practice Grading of case study, discussion, and critique of 140 students	Jan 2019 - 2023
<i>External Evaluator</i> – ANSC 3609 Business Planning for Animal Enterprises Grading of competitive presentations of eight groups (60 students)	2018 - 2020
<i>Teaching Assistant</i> – Regional Agricultural Research Station, India Livestock production management classes for internship students	Dec 2016 - Aug 2017

## PUBLICATIONS AND ABSTRACTS:

*Ph.D. Dissertation* – Investigating multiple alternative approaches against emerging drug-resistant serotypes of *Salmonella* in commercial turkeys.

*M.S. Thesis* - Determining the antibacterial potential of a medium-chain fatty acid, caprylic acid, against multidrug-resistant *Salmonella enterica enterica* serovar Heidelberg in broiler chickens

*Peer-reviewed publication:*

1. **Manjankattil, S.**, Nair, D.V., Peichel, C., Noll, S., Johnson, T.J., Cox, R.B., Donoghue, A.M. and Johny, A.K., 2021. Effect of caprylic acid alone or in combination with peracetic acid against multidrug-resistant *Salmonella* Heidelberg on chicken drumsticks in a soft scalding temperature-time setup. *Poultry Science*, p.101421. Available at <https://doi.org/10.1016/j.psj.2021.101421>
2. Dewi, G., **Manjankattil, S.**, Peichel, C., Jia, S., Nair, D., Vickers, Z., Johnson, T.J., Cardona, C., Noll, S. and Johny, A.K., 2021. Effect of Plant-Derived Antimicrobials Against Multidrug-Resistant *Salmonella* Heidelberg in Ground Turkey. *Poultry Science*, p.101581. Available at <https://doi.org/10.1016/j.psj.2021.101581>
3. Nair, D; **Manjankattil, S**; Peichel, C; Donoghue, A. M; Venkitanarayanan. K; and Kollanoor Johny, A. 2023. Effect of Plant-Derived Antimicrobials, Eugenol, Carvacrol, and  $\beta$ -Resorcylic Acid against *Salmonella* on Organic Chicken Wings and Carcasses. *Poultry Science*, p.102886. Available at <https://doi.org/10.1016/j.psj.2023.102886>
4. Dewi, G., **Manjankattil, S.**, Peichel, C., Johnson, T.J., Cardona, C., Noll, S. and Johny, A.K., 2024. Combination of autochthonous *Lactobacillus* strains and trans-Cinnamaldehyde in water reduces *Salmonella* Heidelberg in turkey poult. *Frontiers in Microbiology*, 15, p.1337428. Available at <https://doi.org/10.3389/fmicb.2024.1337428>
5. **Manjankattil, S**; Dewi, G; Peichel, C; Johnson, T; Noll, S; Cardona, C; and Kollanoor Johny, A. 2024. Effect of pimenta essential oil against *Salmonella* Agona and *Salmonella* Saintpaul in ground turkey meat as well as non-processed turkey breast meat. *Poultry Science* 103(2), p.103279. Available at <https://doi.org/10.1016/j.psj.2023.103279>
6. **Manjankattil, S**; Dewi, G; Peichel, C; Creek, M; Bina, P; Lerohl, K; Deniz, K; Akhtar, L; Porter, R; Johnson, T; Noll, S; and Kollanoor Johny, A. 2024. Dairy-Origin *Propionibacterium freudenreichii*, Turkey-Origin *Lactobacillus salivarius*, and a *Salmonella* Typhimurium Vaccine Elicit Comparable Colonization Resistance on Drug-Resistant *Salmonella* Serotypes (*S. Reading*, *S. Agona*, and *S. Saintpaul*) in Growing Turkeys After Oral Challenge. *Journal of Applied Poultry Science*. 33(3) p;100428. Available at <https://doi.org/10.1016/j.japr.2024.100428>
7. **Manjankattil, S.**, Dewi, G., Peichel, C., Creek, M., Bina, P., Johnson, T.J., Cox, R., Noll, S. and Johny, A.K., 2025. Effect of Pimenta Essential Oil and Peracetic Acid as Pre-Grind Dip Treatments on Emerging *Salmonella*, Spoilage Bacteria, and Quality Attributes of Ground Turkey during Chilled Storage. *Poultry Science*, p.104829. Available at <https://doi.org/10.1016/j.psj.2025.104829>
8. Peichel, C., Nair, D.V.T., **Manjankattil, S.**, Reed, K.M., Cox, R.B., Donoghue, A.M. and Johny, A.K., 2025. Effect of trans-cinnamaldehyde and peracetic acid alone or in combination on multidrug-resistant *Salmonella* Heidelberg on broiler drumsticks under scalding alone or with chilling and storage in sequence. *Journal of Applied Poultry Research*, 34(1), p.100508. Available at <https://doi.org/10.1016/j.japr.2024.100508>
9. Arthur, W; Akplah, C; **Manjankattil, S**; Smith, J; Wells, D; Bourassa, D; and Higgins, B. 2024. Dosing *Salmonella* into Poultryponics: Fate of *Salmonella* during treatment of poultry processing wastewater and irrigation of hydroponic lettuce. *Journal of Environmental Management*. Under review.

Conference proceedings:

1. **Manjankattil, S;** Peichel, C; Dewi, G; and Kollanoor Johny, A. 2022. Targeted preharvest interventions against *Salmonella* in turkeys. Midwest Poultry Federation Conference.
2. **Manjankattil, S;** Peichel, C; Nair, D; Dewi, G; and Kollanoor Johny, A. 2022. Plant-based antimicrobials against *Salmonella* in turkey processing. Midwest Poultry Federation Conference.

Scientific Abstracts:

1. **Manjankattil,S;** Poudel,S; Alaniz, M VB; Gomez, K V C; Zelaya, F A C; and Bourassa, D. 2024. Effect of n-alkyl dimethyl benzyl ammonium chloride and peracetic acid in chilling water against different *Salmonella* serotypes inoculated to chicken flats. Poultry Science Association Annual Meeting.
2. Poudel, S; **Manjankattil, S;** Adhikari, Y; and Bourassa, D. 2024 Aerotolerance of *Campylobacter coli* isolated from commercial poultry production system. Poultry Science Association Annual Meeting.
3. Prabhakaran, D; **Manjankattil, S;** Peichel, C; Donoghue, A and Kollanoor Johny , A. 2024. Plant-Based Antimicrobials, *Trans*-Cinnamaldehyde and Caprylic Acid, Exhibit Gut-Health Friendly Outcomes While Reducing *Salmonella* in 5-Week-Old Broiler Chickens. Research Computing Exhibition, UMN.
4. Figueroa, J; **Manjankattil, S;** Baca, M; Price, S; Buhr,R; and Bourassa, D. 2024. Assessment of *Salmonella*-Infantis specific bacteriophage application for mitigation of contamination on chicken wing flats. Poultry Science Association Annual Meeting.
5. McConnell, A; Riggs, M; **Manjankattil, S;** Poudel, S; Jennings, M; Hughes, M; Rawson, I; Buhr, J; and Bourassa, D. 2024. Evaluating the efficacy of a novel two-sided drop-through photonic decontamination system on *Salmonella* reduction. IPSF.
6. Jennings, M; McConnell, A; **Manjankattil, S;** Hughes, M; and Bourassa, D. 2024. Impact of Lairage Temperatures on Meat Quality Parameters of Controlled Atmosphere Stunned Poultry. Poultry Science Association Annual Meeting.
7. McConnell, A; Riggs, M; **Manjankattil, S;** Poudel, S; Jennings, M; Hughes, M; Rawson, I; Buhr, J; and Bourassa, D. 2024. Efficacy of a novel two-sided drop-through photonic decontamination system on *Campylobacter* reduction on poultry parts. Poultry Science Association Annual Meeting.
8. **Manjankattil, S;** Dewi, G; Peichel, C; Johnson, T; Noll, S; Cardona, C; and Kollanoor Johny, A. 2023. Effect of pimenta essential oil against multidrug-resistant *Salmonella* Agona and *Salmonella* Saintpaul in non-processed turkey breast meat and ground turkey. CFANS Research Symposium.
9. **Manjankattil, S;** Dewi, Peichel, C; Creek, M; Bina, P; Lerohl, K; Deniz, K; Akhtar, L; Porter, R; Johnson, T; Noll, S; and Kollanoor Johny, A. 2023. Effects of a host-specific *Lactobacillus* probiotic tested against emerging *Salmonella* on growth and hepatic health of growing turkeys. NCADC. North Central Avian Disease Conference
10. **Manjankattil, S;** Dewi,G; Peichel, C; Creek, M; Bina, P; Lerohl, K; Deniz, K; Akhtar, L; Porter, R; Johnson, T; Noll, S; and Kollanoor Johny, A. 2023. Combined use of *Propionibacterium freudenreichii* and *Salmonella* Typhimurium vaccine attenuates colonization and dissemination of emerging multidrug-resistant *Salmonella* in growing turkeys. Poultry Science Association Annual Meeting.
11. Prabhakaran, D; Bilal, M; **Manjankattil, S;** Peichel, C; & Kollanoor Johny , A. 2023. Validating Temperature for Growth, Nutrient Media, and Incubation Days for *Propionibacterium Freudenreichii Freudenreichii*, a Dairy-Originated Probiotic Bacterium, for *In Vivo* Studies. International Association for Food Protection.
12. Prabhakaran, D; Bilal, M; **Manjankattil, S;** Peichel, C; & Kollanoor Johny , A. 2023. Effect of temperature, incubation time, and growth media on the growth of *Salmonella enterica* Infantis. International Association for Food Protection.
13. **Manjankattil, S;** Dewi, Peichel, C; Creek, M; Bina, P; Lerohl, K; Deniz, K; Akhtar, L; Porter, R; Johnson, T; Noll, S; and Kollanoor Johny, A. 2022. Effects of a turkey-origin *Lactobacillus salivarius* probiotic and a live attenuated *Salmonella* Typhimurium vaccine on the cecal colonization and internal organ dissemination of emerging multidrug-resistant *Salmonella* in growing turkeys. Poultry Science Association Annual Meeting.
14. Peichel, C; **Manjankattil, S;** Dewi, G; Akhtar, L; Bina, P; Creek, M; Deniz, K; Hobbs, J; Wichmann, E; Feist, E; Scholsser, M; Johnson, T; Noll, S; and Kollanoor Johny, A. 2022. Reduction of *Salmonella* Reading

- using a dairy-originated probiotic bacterium, *Propionibacterium freudenreichii*, in combination with a live attenuated *Salmonella* Typhimurium vaccine in growing turkeys. American Society of Animal Science
15. **Manjankattil, S;** Dewi, G; Peichel, C; Johnson, T; Noll, S; Cardona, C; and Kollanoor Johny, A. 2021. Effect of pimenta essential oil against multidrug-resistant *Salmonella* Agona and *Salmonella* Saintpaul in non-processed turkey breast meat and ground turkey. Poultry Science Association Annual Meeting.
  16. **Manjankattil, S;** Noll, S; and Kollanoor Johny, A. 2021. Caprylic acid against *Salmonella*. Minnesota Turkey Growers Association – Gobbles Magazine.
  17. Nair, D; **Manjankattil, S;** Peichel, C; Donoghue, A. M; Venkitanarayanan. K; and Kollanoor Johny, A. 2021. Antimicrobial efficacy of a plant-derived compound, carvacrol, against *Salmonella* Enteritidis on organic chicken carcasses. Poultry Science Association Annual Meeting.
  18. Peichel, C; **Manjankattil, S;** Dewi, G; Amann, A; Bina, P; Creek, M; Akhtar, L; Johnson, T; Noll, S; Reed, K; Cardona, C; and Kollanoor Johny, A. 2021. Reduction of cecal colonization and internal organ dissemination of emerging *Salmonella enterica* serovar Reading using a turkey-derived probiotic and a *Salmonella* Typhimurium vaccine in growing turkeys. Poultry Science Association Annual Meeting.
  19. Peichel, C; **Manjankattil, S;** Dewi, G; Amann, A; Bina, P; Creek, M; Akhtar, L; Johnson, T; Noll, S; Reed, K; Cardona, C; and Kollanoor Johny, A. 2021. Reduction of cecal colonization and internal organ dissemination of emerging *Salmonella enterica* serovar Reading using a turkey-derived probiotic and a *Salmonella* Typhimurium vaccine in growing turkeys. Poultry Science Association Annual Meeting.
  20. **Manjankattil, S;** Dewi, G; Peichel, C; Frye, J; and Kollanoor Johny, A. 2020. Effect of plant derived antimicrobials against drug-resistant *Campylobacter jejuni* in turkey poult. Poultry Science Association Annual Meeting.
  21. **Manjankattil, S;** Nair, D; Peichel, C; Donoghue, A. M; and Kollanoor Johny, A. 2019. Effect of caprylic acid in scalding water on broiler drumsticks contaminated with multidrug-resistant *Salmonella* Heidelberg. Poultry Science Association Annual Meeting.
  22. Dewi, G; **Manjankattil, S;** Peichel, C; Johnson, T; Noll, S; Cardona, C; and Kollanoor Johny, A. 2021. Effect of Turkey-derived *Lactobacillus* probiotics and trans-cinnamaldehyde against multidrug-resistant *Salmonella* Heidelberg in turkey poult. International Association of Food Protection.
  23. Peichel, C; **Manjankattil, S;** Dewi, G; Johnson, T; Noll, S; Cardona, C; and Kollanoor Johny, A. 2021. Effects of lemongrass and pimenta Essential Oils on *Salmonella* Reading in ground turkey. Institute of Food Technologists
  24. Nair, D; **Manjankattil, S;** Peichel, C; Donoghue, A. M; Venkitanarayanan. K; and Kollanoor Johny, A. 2020. Plant derived compounds eugenol, carvacrol, beta-resorcylic acid reduce *Salmonella* on chicken wings at scalding and chilling conditions. Poultry Science Association Annual Meeting.
  25. Dewi, G; Peichel, C; **Manjankattil, S;** and Kollanoor Johny, A. 2020. Pre-harvest interventions and implications of safety for turkey processing. Midwest Poultry Federation Conference.
  26. Dewi, G; **Manjankattil, S;** Peichel, C; Jia, S; Nair, D; and Kollanoor Johny, A. 2019. Reduction of *Salmonella* Heidelberg in ground turkey using plant-derived antimicrobials. Poultry Science Association Annual Meeting.
  27. Peichel, C; Nair, D; **Manjankattil, S;** Donoghue, A. M; and Kollanoor Johny, A. 2019. Effect of trans-cinnamaldehyde in scalding water on broiler drumsticks contaminated with *Salmonella* Heidelberg. Poultry Science Association Annual Meeting.
  28. **Manjankattil, S;** Nair, D; Dewi, G; Peichel, C; Donoghue, A. M; and Kollanoor Johny, A. 2018. The potential use of caprylic acid as a pre-harvest intervention strategy against multidrug-resistant *Salmonella* Heidelberg in broiler chickens. Minnesota Nutrition Conference.
  29. Peichel, C; Nair, D; Dewi, G; **Manjankattil, S;** Donoghue, A. M; and Kollanoor Johny, A. 2018. Effect of a plant-derived compound, trans-cinnamaldehyde, on multidrug-resistant *Salmonella* Heidelberg in commercial broiler chickens. 79<sup>th</sup> Minnesota Nutrition Conference Mankato, MN.
  30. Dewi, G; Nair, D; Peichel, C; **Manjankattil, S;** Langlie, J, and Kollanoor Johny, A. 2018. Effect of lemongrass essential oil on *Salmonella* Heidelberg colonization in commercial broiler chickens. Poultry Science Association Annual Meeting.
  31. Grace Dewi, D.V.T. Nair, C. Peichel, **S. Manjankattil,** J. Langlie, and A. Kollanoor Johny. 2018. Bacitracin methylene disalicylate reduces multidrug-resistant *Salmonella enterica* serovar Heidelberg in the cecum of

- commercial broiler chickens. Poultry Science Association 107<sup>th</sup> Annual Meeting. San Antonio, TX. Poult. Sci. 97(E - Suppl. 1): 68. 7.
32. Grace Dewi, D.V.T. Nair, C. Peichel, **S. Manjankattil**, J. Langlie, and A. Kollanoor Johny. 2018. Effect of bacitracin methylene disalicylate against multidrug resistant *Salmonella enterica* serovar Heidelberg in commercial broiler chickens. 79<sup>th</sup> Minnesota Nutrition Conference. Mankato, MN.
  33. **Shijina Raj**, Vishnu Vijayan, Akhila Raj R J, C.G. Umesh, S. Ajith Kumar. 2013. *Babesia gibsoni* in dog - A Case Report. Compendium of 5<sup>th</sup> International Clinical Case Conference on Farm and Companion Animal Practice for Veterinary students. Chennai, India.
  34. C.V. Rajani, **Shijina Raj**, Leena Chandrasekhar, S. Maya, M. Pradeep, and I.S. Sajitha. 2012. Morphological Studies on the Femur and Patella of Sambar deer (*Cervus unicolor*). Tamil Nadu J. Veterinary 8(1) 19-21.
  35. Akhila Raj R.J, Nidhina Sasi, **Shijina Raj**, Jyothimol, C.G. Umesh, S. Ajith Kumar. 2013. *Theileria orientalis* Infection in Cross Bred Cattle - A Case Report. Compendium of 5<sup>th</sup> International Clinical Case Conference on Farm and Companion Animal Practice for Veterinary students, Chennai, India.

#### AWARDS:

- Patrick J Manning Research Award 2023
- Research Support Grant, Graduate Student Board 2023
- President's Student Leadership & Service Award 2023
- Distinguished Poster Presentation award, CFANS Research Symposium 2023
- IonE Graduate Scholar 2022- 23
- Poultry Science Association Annual Meeting – Graduate Student Travel Award – 2022
- University of Minnesota Informatics Institute (UMII) MnDRIVE Graduate Assistantship Award (\$42,000) – 2022 – 2023
- COGS Professional Development Grant – 2021
- MnDRIVE Global Food Ventures Graduate Student Professional Development Program Fellowship (\$13,000) – 2020 -2021
- The Nelson Scholarship – 2020
- First prize – poster presentation – World Veterinary Day Celebrations 2012, College of Veterinary and Animal Sciences, Pookode, India
- Third prize – poster presentation – World Zoonosis Day commemoration 2013 by Department of Veterinary Public Health, College of Veterinary and Animal Sciences, Pookode, India.

#### SERVICE:

##### Peer Reviewer

- Journal of Applied Poultry Science 2023 - present

##### Council of Graduate Students, UMN

- Associate Director of Grants CFANS collegiate fee committee, UMN 2022 - 2023

##### Leadership team member Student Service Fee Committee, UMN

2022 - 2023

##### General member International Student Advisory Board

2022 - 2023

##### IonE Graduate Scholar, UMN

2022 - 2023

##### Civic Leadership Program, UMN

2022 - 2023

##### Mentorship Activities

- Mentee – Mikayla Schlosser, Undergraduate student, Dept. of Animal Science, UMN 2021 - 2022
- Mentee - Samrawit tsehay, Ph.D student, Dept of Animal Science 2022 - 2023

##### NRVTAP, International Student & Scholar Services, UMN

- Volunteer for tax assistance 2022 - 2023

##### CFANS Mentor Mentee Program, UMN

- Matching committee co-chair, Food Science 2021 - 2022

Council of Graduate Students, UMN

- Grant review committee 2020

Gopher poultry science club, UMN

- Treasurer, Secretary 2019 - 2023
- Volunteer activities toward FFA CDE contests 2017 - 2019
- Volunteer activities in the Minnesota state fair 2018

Graduate club, Animal Science Department, UMN

- Volunteer activities in Ramsey County fair 2018
- Panelist for shelf-life study of meat products 2018

## PROFESSIONAL ASSOCIATION:

American Registry of Professional Animal Scientists

Since April 2023

World Poultry Science Association

April 2019 – Present

Poultry Science Association

April 2019 – Present

American Association for the Advancement of Science

Since 2019

Indian Veterinary Association

Since March 2015

Kerala State Veterinary Council

Since 2015

## REFERENCES:

1. Dr. Anup Kollanoor Johny, PhD  
Associate Professor,  
Department of Animal Science, UMN  
Email ID: [anupjohn@umn.edu](mailto:anupjohn@umn.edu)  
Ph no: 860 208 9817
2. Dr. Sally Noll, PhD  
Professor,  
Department of Animal Science, UMN  
Email ID: [nollx001@umn.edu](mailto:nollx001@umn.edu)  
Ph no: 612 624 4928
3. Dr. Tim Johnson, PhD  
Professor,  
Department of Veterinary & Biomedical Sciences  
Email ID: [tjj@umn.edu](mailto:tjj@umn.edu)  
Ph no: 612 626 2542
4. Dr. Dianna Bourassa, PhD  
Associate Professor,  
Department of Poultry Science,  
Email ID: [dyb0006@auburn.edu](mailto:dyb0006@auburn.edu)