

# Kanishka Bhunia

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## EDUCATION

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- **Washington State University** Pullman, USA  
*Ph.D. in Food Engineering* August 2011 - May 2016  
*Advisor: Prof. Shyam S. Sablani*
- **Indian Institute of Technology Kharagpur** West Bengal, India  
*M. Tech. in Dairy and Food Engineering* July 2009 - May 2011  
*Advisor: Prof. Ashis Kumar Datta*
- **Bidhan Chandra Krishi Viswavidyalaya** West Bengal, India  
*B. Tech. in Agricultural Engineering* July 2005 - May 2009  
*Advisor: Prof. Subrata Karmakar*

## EXPERIENCE

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- **IIT Kharagpur** West Bengal, India  
*Assistant Professor* June 2018 - Present
- **Cornell University** Ithaca, New York, USA  
*Post Doctoral Research Associate* 2017 - 2018  
*Advisor: Prof. Ashim Datta*
- **Washington State University** Pullman, USA  
*Post Doctoral Research Associate* 2016 - 2017  
*Advisor: Prof. Shyam S. Sablani*

## PROJECTS

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### As Principal Investigator

- **Battery-free Chemical-Sensor Interfaced Radio-frequency Identification (RFID) Tag for Improved Food Safety and Quality, and Waste Reduction in the Indian Food Supply Chain:** Amount: **32.54 Lakhs**; SERB, GOI
- **Establishment of Innovation and Agri-Entrepreneurship Cell under RKVY-RAFTAAR:** Amount: **2.33 crore**, RKVY Division, GOI
- **Development of Novel Indicator for Real-time Monitoring of Shelf-life of Perishable Foods:** Amount: **28 Lakhs**, ISIRD, SRIC

### As Co-Principal Investigator

- **Electrospun Nanofibers for Increased Efficacy of Multi-Vitamin Encapsulation using Ascorbic Acid and Folic Acid and Monitoring the Depletion of Encapsulated Vitamin-C for Active Packaging:** Ministry of Human Resource Development, GoI
- **Harvest and Post Harvest Engineering and Technology:** AICRP, ICAR, India
- **Protocol Development for Estimation of Milling Out Turn Ratio in Modern and Modernized Rice Mills Across Varying Agro-climatic Zones of India:** Food Corporation India

## PUBLICATIONS

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### Journal Articles

1. Pal, A., **Bhunia, K.** (2025). Modeling the Biphasic and Monophasic Microbial Growth in Pasteurized Cow Milk Under Isothermal Temperature Abuse, *Journal of Food Process Engineering*, e70064
2. **Bhunia, K.**, Tang, J., Sablani, S. S., (2024). Microwave-based sustainable in-container thermal pasteurization and sterilization technologies for foods, *Sustainable Food Technology*, 926-944
3. Nayak, PP., Nandi, S., **Bhunia, K.**, Datta, AK. (2023). Modeling the extraction process parameters of amorphous silica-rich rice husk ash using hybrid RSM- BPANN- MOGA optimization technique, *Materials Chemistry and Physics*, 293, 126944
4. Kullu, JG., Panda, BK., Shrivastava, SL., **Bhunia, K.**, Datta, AK. (2022). Development of an Integrated Image Acquisition Setup for Assigning Selling Price of Rough and Milled Rice (*Oryza Sativa L.*) in the Supply Chain, *IEEE World Conference on Applied Intelligence and Computing*, 339-343
5. Rakshit, M., Srivastav, P. P., & **Bhunia, K.** (2020). Kinetic modeling of ultrasonic-assisted extraction of punicalagin from pomegranate peel. *Journal of Food Process Engineering*, 43(11), e13533

6. Parhi, A., **Bhunia, K.**, Rasco, B., Tang, J., & Sablani, S. S. (2019). Development of an oxygen sensitive model gel system to detect defects in metal oxide coated multilayer polymeric films. *Journal of food science*, 84(9), 2507-2519
7. Zhang, H., Patel, J., **Bhunia, K.**, Al-Ghamdi, S., Sonar, C. R., Ross, C. F., ... & Sablani, S. S. (2019). Color, vitamin C, beta-carotene and sensory quality retention in microwave-assisted thermally sterilized sweet potato puree: Effects of polymeric package gas barrier during storage. *Food Packaging and Shelf Life*, 21, 100324
8. Muñoz, N., Sonar, C. R., **Bhunia, K.**, Tang, J., Barbosa-Cánovas, G. V., & Sablani, S. S. (2019). Use of protective culture to control the growth of *Listeria monocytogenes* and *Salmonella typhimurium* in ready-to-eat cook-chill products. *Food Control*, 102, 81-86
9. Kak, A., Bajaj, P. R., **Bhunia, K.**, Nitin, N., & Sablani, S. S. (2019). A Fluorescence-based Method for Estimation of Oxygen Barrier Properties of Microspheres. *Journal of food science*, 84(3), 532-539
10. Kumar, PK., **Bhunia, K.**, Tang, J., Rasco, B., Takhar, PS., Sablani, SS. (2019). State/phase transitions induced by ice recrystallization and its influence on the mechanical properties of potatoes (*Solanum tuberosum* L.) var. Russet Brown. *Journal of Food Engineering*, 251, 45-56
11. Kumar, PK., **Bhunia, K.**, Tang, J., Rasco, B., Takhar, PS., Sablani, SS. (2018). Thermal transition and thermo-physical properties of potato (*Solanum tuberosum* L.) var. Russet brown, *Journal of Food Measurement and Characterization*, 12, 1572-1580

### Book Chapters

1. Kumar, R., **Bhunia, K.**, (2025). Migratory Effects, Safety, and Concerns of Nanofood Packaging. In *Nanotechnology for Sustainable Food Packaging* (pp. 345-379). John Wiley & Sons, Ltd
2. **Bhunia, K.**, Sablani, S. S., (2024). Product and Package Testing in Microwave Processes. In *Microwave Processing of Foods: Challenges, Advances and Prospects: Microwaves and Food* (pp. 605-622). Springer International Publishing
3. Pal, A., & **Bhunia, K.** (2022). Nanotechnology in Microbial Food Safety. In *Food, Medical, and Environmental Applications of Nanomaterials* (pp. 253-304). Elsevier
4. Sablani, S. S., **Bhunia, K.**, & Rahman, M. S. (2020). Food-Packaging Interactions. In *Handbook of Food Preservation* (pp. 923-942). CRC Press.
5. Zhang, H., **Bhunia, K.**, & Sablani, S. S., (2018). Packaging Technology for Microwave Sterilization, In *Packaging for nonthermal processing of food*. (pp. 205-224). Wiley.
6. **Bhunia, K.**, Zhang, H., & Sablani, S. S., (2016). Gas Barrier Packaging, In *Reference Module in Food Science 1<sup>st</sup> Edition*. Elsevier.

### CONFERENCE/PRESENTATIONS

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- **Invited presentation: SPARC** IIT Kharagpur, India  
*Topic: Intelligent Packaging for Smart Sensing of Food Freshness* August 2024
  - **Invited presentation: FortiSF symposium** IIT Kharagpur  
*Topic: Sensor for Rapid and Non-destructive Evaluation of the Quality of Fortified Stable Foods* February 2024
  - **Invited presentation: International conference 'KaryaSala'** NIT Rourkela, India  
*Topic: Food Stability Analysis using Differential Scanning Calorimetry* July 2023
  - **Session Chair and Invited Presentation : 11<sup>th</sup> Asia Pacific Drying Conference** Kolkata, India  
*Topic: Packaging Technology for Dry Food Products* February 2023
  - **Invited Presentation (online): International Yonsei Packaging Meeting** South Korea  
*Topic: Packaging Technology for Microwave Processing of Foods* February 2023
  - **Invited Presentation: International conference 'KETSAC 2022'** NIT Rourkela, India  
*Topic: Intelligent Food Packaging: A Step towards Smarter and Sustainable Agri-Food Chain* December 2022
  - **Invited presentation: International conference 'KaryaSala'** NIT Rourkela, India  
*Topic: Packaging Technology for Microwave Processing of Foods* August 2022
  - **Invited presentation: Institute of Food Technologists Annual Meeting** New Orleans, USA  
*Topic: Food Safety Education in Engineering Curricula* June 2019

## RESPONSIBILITIES

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- **Associate Editor**, Journal of Food Science, Wiley, 2022 onwards
- **Editorial Board Member**, Journal of Food Science, Wiley, 2019 onwards
- Reviewer, Journal of Food Science, Journal of Food Engineering, Food Innovations and Advances
- **Assistant Warden**, Vidyasagar Hall, 2023-2025
- **Assistant Warden**, Nehru Hall, 2018-2020

## PROFESSIONAL MEMBERSHIP

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- Member Society of Food Engineering
- Member, ASBAE
- Life member, Institute of Engineers, India
- Member, Institute of Food Technologists (IFT), USA
- Life member, Association of Food Scientists and Technologists (AFST), India

## RESEARCH INTEREST

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- Intelligent/Smart Food Packaging
- Microbial Food Safety
- Food Material Science and Engineering
- Food Stability and Shelf life
- Modeling of food processes

## TEACHING

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- **Autumn Semester**: Grain Storage Principles and Structures, Principles of Food Engineering, Food Engineering Lab, Food Analysis Lab
- **Spring Semester**: Post Harvest Engineering, Mass Transfer Operation in Food Processing, Instrumentation and Control in Food Industries, Food Process Engineering Lab
- **New Lab topic introduced**: Microwave Processing of Foods, Predictive Microbiology, Time constant of a temperature sensor, Hydrocooling of fruits and vegetables

## AWARDS & ACHIEVEMENTS

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- Puget Sound Institute of Food Technologist (PSIFT) Scholastic Achievement Award, USA
- Daniel-Siegel Memorial Scholarship Award, TAPPI-PLACE, USA