

Ronit Mandal, Ph.D.

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CURRENT AFFILIATION

Indian Institute of Technology, Kharagpur

Assistant Professor, Agricultural and Food Engineering Department

Kharagpur, WB, India

August 2023–Pres.

Roles: Teaching, Research and development, supervision, course development, administrative works, consultancy

Research Areas: Food Process Engineering, Computational modeling, AI/ML applications, Sustainable Food Processing, Foodomics

PROFESSIONAL EXPERIENCE

University of Minnesota

Post-Doctoral Associate, Plant Protein Innovation Center

Twin Cities, MN, USA

August 2022–July 2023

- **Research:** Prediction of plant proteins functionality using computational modeling and machine learning algorithms (In collaboration with Microsoft Research)
- **Advisor:** Prof. B. Pam Ismail

University of British Columbia

Graduate Research & Teaching Assistantship

Vancouver, Canada

2018 – 2022

- **Role:** Course development, guest lectures, grading exams, managing office hours
- **Advisor:** Dr. Anubhav Pratap-Singh

EDUCATION

University of British Columbia

Ph.D., Food Science

Vancouver, Canada

2018 – 2022

- **Thesis:** Design, development, and validation of continuous-flow pulsed UV light systems for liquid food processing
- **Advisor:** Dr. Anubhav Pratap-Singh
- **Distinction:** Faculty of Land and Food Systems, UBC Top Dissertation Award for 2022

Indian Institute of Technology, Kharagpur

M.Tech., Food Process Engineering

Kharagpur, India

2016 – 2018

- **Thesis:** Design and development of a solar energy driven small-scale milk pasteurization equipment
- **Advisor:** Prof. Ashis Kumar Datta

West Bengal University of Animal and Fishery Sciences

B.Tech., Dairy Technology

Kolkata, India

2012 – 2016

- **Distinction:** University Gold Medal, Prof. Sukumar De Gold Medal & Indian Dairy Association (East Zone) Gold Medal for highest grades in the University

SELECTED AWARDS AND RECOGNITIONS

Faculty of Land and Food Systems Top Dissertation Award, for Best dissertation in the faculty for academic year 2022, C\$ 750	2023
Shuryo Nakai Scholarship in Food Science, for excellence and PhD research, C\$ 3,850	2021
President's Academic Excellence Initiative PhD Award, for excellence in PhD research, C\$ 3,000	2020 – 2021
International Tuition Award, C\$12,800	2018 – 2021
Mary and David Macaree Fellowship, for excellence and PhD research, C\$ 37,393	2019 – 2021
Graduate Student Travel Award, for excellence and PhD research, C\$ 500	2019
Food Science Graduate Award, for excellence and PhD research, C\$ 933	2019
Land and Food Systems Graduate Students Award, C\$ 2,000	2018
Kin's Excellence Award in Food Science, C\$ 2,000	2018

UBC Graduate Research Assistantship, for support in PhD studies	2018 – 2022
M. Tech Fellowship, Government of India Ministry of Human Resource Development, ₹ 12,400/mo.	2016 – 2018
Prof. Sukumar De Gold Medal, for obtaining the highest marks in the discipline	2017
Urmilabala Sarkar Memorial Gold Medal, for obtaining the highest marks in the discipline	2017
Indian Dairy Association (East Zone) Gold medal, for obtaining the highest marks in the discipline	2017
Government of West Bengal Scholarship, ₹ 4000/yr	2012 – 2016

TEACHING ASSISTANTSHIP

University of British Columbia

FNH524: Advances in Food Process Sciences [enrollment~30]	Winter 2021
FNH325: Food Science Laboratory [enrollment~24]	Winter 2021
FNH200: Exploring our Food [enrollment~150]	Winter 2020
FNH300: Principles of Food Engineering [enrollment~60]	Winter 2018, 2019, 2020
FNH309: Food Process Science [enrollment~60]	Winter 2018, 2019, 2020
FNH425: Food Science Laboratory [enrollment~20]	Winter 2019, 2020
FNH490: Advanced Topics in Food, Nutrition, and Health: Food Safety and Quality Management [enrollment~40]	Winter 2020

PUBLICATIONS

$n = 40$ [31 published, 2 in review, 7 in press], h -index = 12, Citations = 627

40. **Mandal R**, Pratap-Singh A*. “Computational fluid dynamics analysis and biodosimetry based microbial validation for continuous-flow pulsed UV light reactors for processing of liquid foods” (2024), *Journal of Food Engineering*. Under Review
39. Pratap-Singh A*, **Mandal R**. “Non-thermal processing of watermelon and red grape juices in thin-profile continuous-flow pulsed UV light reactors: Effect on microbiological safety and nutritional value” (2024), *LWT-Food Science and Technology*. Under Review.
38. **Mandal R**, Pratap-Singh A*. “Microwave Vacuum Dehydration in Food Industry” (2023) Ramaswamy H S, Pratap-Singh A, *Microwave Processing of Foods: Challenges, Advances and Prospects*, Springer Nature. In Press.
37. Karmakar P*, **Mandal R**. “Compositional Analysis of Cream” (2024). Megh R. Goyal, N. Veena, Santosh K. Mishra, *Laboratory Handbook of Dairy Science and Technology, Volume 1*, Apple Academic Press. In press.
36. **Mandal R***, Karmakar P, Roy K. “Physicochemical Analysis for Milk Powder” (2024) Megh R. Goyal, N. Veena, Santosh K. Mishra, *Laboratory Handbook of Dairy Science and Technology, Volume 2*, Apple Academic Press. In press.
35. Roy K*, Debnath A, **Mandal R**, Hossain S, Karmakar P. Debnath P P. Physicochemical Analysis of Khoa and Khoa-Based Sweets” (2024) Megh R. Goyal, N. Veena, Santosh K. Mishra, *Laboratory Handbook of Dairy Science and Technology, Volume 2*, Apple Academic Press. In press.
34. Karmakar P*, **Mandal R**, Roy K. “Estimation of Nutraceutical Components of Milk and Milk Products” (2024) Megh R. Goyal, N. Veena, Santosh K. Mishra, *Laboratory Handbook of Dairy Science and Technology, Volume 2*, Apple Academic Press. In press.
33. Rani R, Karmakar P, Singh N, **Mandal R***. “Encapsulation Methods in the Food Industry: Mechanisms and Applications” (2023) Megh R. Goyal, N. Veena, *Advances in Food Process Engineering*, Apple Academic Press. In Press.
32. **Mandal R***, Karmakar P, Roy K, Rani R. “Heat and Acid Coagulated Milk Products: Physicochemical Changes During Processing and Storage” (2023) Megh R. Goyal, Suvartan Ranvir, *The Chemistry of Milk and Milk Products*, Apple Academic Press. In press.
31. **Mandal R***, Karmakar P. “Aptamer: next generation analytical tool for dairy industry” (2023) Manishkumar Parmar, Tanmay Hazra, Rohit G. Sindhav & CH.V.K. Sudheendra, *Innovations in Dairy Sciences*.
30. Roy K*, Debnath P P, Debnath A, **Mandal R**, Karmakar P. “Alternative (Eco-friendly) Milk Processing Systems” (2023) Manishkumar Parmar, Tanmay Hazra, Rohit G. Sindhav & CH.V.K. Sudheendra, *Innovations in Dairy Sciences*.
29. Debnath P P, Debnath A, Roy K, Karmakar P, **Mandal R**, Sarkar J R. “Applications of Enzyme Based Flavour Components in Dairy Products” (2023) Manishkumar Parmar, Tanmay Hazra, Rohit G. Sindhav & CH.V.K. Sudheendra,

28. Karmakar P*, **Mandal R**. “Applications of Nano Science in Dairy Quality Aspect” (2023) Manishkumar Parmar, Tanmay Hazra, Rohit G. Sindhav & CH.V.K. Sudheendra, *Innovations in Dairy Sciences*.
27. Cheung, LKY, Sanders, AD, **Mandal, R**, Derek R. Dee, DR, Anubhav Pratap-Singh, A, Yada, RY*. Effect of high-pressure processing on enzyme activity in roots, cereals, nuts, and their products” (2023) Bruno Ricardo de Castro Leite Júnior and Alline Artigiani Lima Tribst, *Effect of High-Pressure Technologies on Enzymes*, Academic Press, Elsevier.
26. Pratap-Singh, A*, Suwardi, A, **Mandal, R**, Pico, J, Castellarin, S D, Kitts, D D, & Singh, A (2023). Effect of UV Filters during the Application of Pulsed Light to Reduce *Lactobacillus brevis* Contamination and 3-Methylbut-2-ene-1-thiol Formation While Preserving the Physicochemical Attributes of Blonde Ale and Centennial Red Ale Beers. *Foods*, 12(4), 684.
25. Pratap-Singh, A*, Shojaei, M, Singh, A., Ye, Y, **Mandal, R**, Yan, Y, Pico, J, Gerbrandt, E M, & Castellarin, S D (2023). Effects of Pulsed Light on the PostHarvest Quality and Shelf-life of Highbush Blueberries (cv. Draper). *Applied Food Research*, 100273.
24. Pratap-Singh A*, Noore S, **Mandal R**, Singh A. “Sustainable Processing Through Efficient Use of Energy and Minimizing Waste Production” (2022) Anet -Režek -Jambrak, *Nonthermal Processing in Agri-Food-Bio Sciences: Sustainability and Future Goals*, Springer.
23. Mohammadi, X, Matinfar, G, **Mandal, R**, Singh, A, Fiutak, G, Kitts, D, & Singh, A P. “Kinetics of Anthocyanin Condensation Reaction in Model Wine Solution Under Pulsed Light Treatment” (2023) *Food Chemistry*, 405, 134600.
22. **Mandal, R**. (2022). Design and numerical simulation of a solar energy driven small-scale milk pasteurization system. *International Journal of Engineering and Applied Science*, 7(6), 149-156.
21. Baldelli A, Etayash H, Oguzlu H, **Mandal, R**, Jiang F, Hancock RE, Pratap-Singh A*. “Antimicrobial properties of spray-dried cellulose nanocrystals and metal oxide-based nanoparticles-in-microspheres” (2022) *Chemical Engineering Journal Advances*, 100273.
20. **Mandal R**, Wiktor A, Mohammadi X, Pratap-Singh A*. “Pulsed UV light irradiation processing of black tea infusions: effect on color, phenolics content and antioxidant capacity” (2021) *Food and Bioprocess Technology*. 15(1): 92-104.
19. Alkanan ZT, Al-Hilphy ARS, Altemimi AB, **Mandal R**, Pratap-Singh A*. “Comparison of quality characteristics of tomato paste produced under ohmic-vacuum combination heating and conventional heating” (2021) *Applied Food Research*. 1(2): 100014.
18. Nowacka M, Dadan M, Janowicz M, Wiktor A, Witrowa-Rajchert D, **Mandal R**, Pratap-Singh A, Janiszewska-Turak E*. “Effect of non-thermal treatments on selected natural food pigments and colour changes in plant material” (2021) *Comprehensive Reviews in Food Science and Food Safety*. 20(5): 5097-5144.
17. **Mandal R***, Karmakar P. “Whey Protein-Derived Bioactive Peptides: Isolation, Characterization, and Functional Aspects” (2021) Megh R. Goyal, N. Veena, Santosh K. Mishra, *Functional Dairy Ingredients and Nutraceuticals: Physicochemical, Technological and Therapeutic Aspects*, Apple Academic Press.
16. **Mandal R***, Pratap-Singh A. “Microwave Vacuum Dehydration Technology in Food Processing” (2021) Preeti Birwal, Megh R. Goyal, Monika Sharma, *Handbook of Research on Food Processing and Preservation Technologies: Volume 2: Nonthermal Food Preservation and Novel Processing Strategies*. Apple Academic Press.
15. **Mandal R**, Pratap-Singh A*. “Characterization of continuous-flow Pulsed UV light reactors for processing of liquid foods in annular tube and coiled tube configurations using actinometry and computational fluid dynamics” (2021) *Journal of Food Engineering*. 304: 110590.
14. Mohammadi X, Deng Y, Matinfar G, Singh A, **Mandal R**, Pratap-Singh A*. “Impact of three different dehydration methods on nutritional values and sensory quality of dried broccoli, oranges, and carrots” (2020) *Foods*. 9(10): 1464.
13. Caballero K, **Mandal R**, Pratap-Singh A, Kitts DD, Ball RO, Pencharz PB, Courtney-Martin G, Elango R*. “Lysine Bioavailability in School-Age Children Consuming Rice Is Reduced by Starch Retrogradation” (2020) *The Journal of Nutrition*. 150(12): 3208-3215.
12. **Mandal R**, Mohammadi X, Wiktor A, Singh A, Pratap-Singh A*. “Applications of Pulsed Light Decontamination Technology in Food Processing: An Overview” (2020) *Applied Science*. 10(10): 3606.
11. Shi Y, **Mandal R**, Anika Singh A, Pratap-Singh A*. “Legume lipoxygenase: Strategies for application in food

industry” (2020) *Legume Sciences*. 2(3): e44.

10. Gonzalez Viejo C*, Villarreal-Lara R, Torrico DD, Rodríguez-Velazco YG, Escobedo-Avellaneda Z, Ramos-Parra PA, **Mandal R**, Pratap-Singh A, Hernández-Brenes C, Fuentes S. “Beer and consumer response using biometrics: Associations assessment of beer compounds and elicited emotions” (2020) *Foods*. 9(6): 821.
9. Pratap-Singh A*, **Mandal R**, Shojaei M, Singh A, Kowalczewski PŁ, Ligaj M, Pawlicz J, Jarzębski M. “Novel Drying Methods for Sustainable Upcycling of Brewers’ Spent Grains as a Plant Protein Source” (2020) *Sustainability*. 12(9): 3660.
8. Wiktor A*, Pratap Singh A, Parniakov O, Mykhailyk V, **Mandal R**, Witrowa-Rajchert D. “PEF as an alternative tool to prevent thermolabile compound degradation during dehydration processes” (2020) Francisco J. Barba, Oleksii Parniakov and Artur Wiktor. *Pulsed Electric Fields to Obtain Healthier and Sustainable Food for Tomorrow*. 1: 155-202. Elsevier Inc.
7. **Mandal R**, Shi Y, Anika Singh A, Pratap-Singh A*. “Food Safety and Preservation” (2020) In Ernst J. Kuipers. *Encyclopedia of Gastroenterology*. Volume 2: 467-479. Elsevier Inc.
6. Amiri A*, Mousakhani-Ganjeh A, Shafiekhani S, **Mandal R**, Pratap-Singh A, Esmaeilzadeh Kenari R. “Effect of high voltage electrostatic field thawing on the functional and physicochemical properties of myofibrillar proteins” (2019) *Innovative Food Science & Emerging Technologies*. 56: 102191.
5. Wiktor A, **Mandal R**, Singh A, Pratap-Singh A*. “Pulsed Light treatment below a Critical Fluence (3.82 J/cm²) minimizes photo-degradation and browning of a model Phenolic (Gallic Acid) Solution” (2019) *Foods*. 8(9): 380.
4. **Mandal R***, Bag SK, Singh AP. “Thermal processing of milk” (2019) Rani R, Singh B, Dharaiya C N, Hanslal, Mani A. *Recent Technologies in Dairy Science*. 39-66. Today and Tomorrow Printers and Publishers.
3. Karmakar P*, **Mandal R**. “Fermented dairy products: science, fermentation kinetics, types, health benefits and advances” (2019) Rani R, Singh B, Dharaiya C N, Hanslal, Mani A. *Recent Technologies in Dairy Science*. 567-585. Today and Tomorrow Printers and Publishers.
2. **Mandal R**, Singh A, Pratap-Singh A*. “Recent Developments in cold plasma decontamination technology in the food industry” (2018) *Trends in Food Science and Technology*. 80: 93-103.
1. **Mandal R***, Kant R. (2017). “High-pressure processing and its applications in the dairy industry” (2017). *Food Science and Technology Journal*. 1: 33-45.

SELECTED CONFERENCE PRESENTATIONS

4. Pratap-Singh A[^], **Mandal R**, Use of pulsed UV light for processing liquid food products. 21st IUFOST World Congress, Singapore, Oct 30-Nov 3, 2022.
3. **Mandal R**[^], Pratap-Singh A. “Pulsed UV Light Treatment of Milk: Influence on Microbiological and Quality Parameters” (2021). IFT Annual event, July 18-21, 2021.
2. **Mandal R**[^], Pratap-Singh A. “Impact of Pulsed UV light treatment on microbiological, nutritional and quality parameters of milk” (2021). Dairy Science and Technology Symposium, Delivering with dairy: from primary production to primary purpose, Aarhus University, Denmark, June 21-25, 2021.
1. **Mandal R**[^], Pratap-Singh A. “Numerical modeling and simulation of a continuous pulsed UV light food processing system” (2021). Conference proceedings. IFT/EFFoST Nonthermal processing workshop, Monterrey, Mexico, November 3-6, 2019.

SELECTED CONFERENCE POSTERS

3. **Mandal R**[^], Pratap-Singh A “Effects of pulsed UV light processing on microbiological, nutritional, and quality characteristics of bovine milk” (2021) 35th EFFoST International Conference, Lausanne, Switzerland, November 1-4, 2021.
2. **Mandal R**[^], Pratap-Singh A “Pulsed UV Light Treatment of Milk: Influence on Microbiological and Quality Parameters” (2021). IFT Annual event, July 18-21, 2021.
1. **Mandal R**[^], Datta AK, Bag SK “Utilization of solar energy for the pasteurization of milk” (2018). 46th Dairy Industry Conference, Kochi, Kerala, India, February 8-10, 2018.

LABORATORY INSTRUMENT KNOWLEDGE

- Texture analyzer, rotational rheometer, viscometer, differential scanning calorimeter, thermogravimetric analyzer, HPLC, LC-MS, LC-MS/MS, MALDI-MS, TOF-MS, FTIR spectrometer, FT-NIR analyzer. Leco Protein analyzer

SOFTWARE AND PROGRAMMING KNOWLEDGE

- ANSYS Fluent (Computational Fluid dynamics package)
- COMSOL Multiphysics (Finite element analysis, and multiphysics simulation)
- MATLAB (Programming and numeric computing platform)
- RStudio (Programming environment for statistical computing and graphics)
- SPSS (Statistical software suite)
- Python (Programming environment for statistical computing and graphics)

MEDIA AND PRESS COVERAGE

- **980 AM CKNW**, segment on blueberry research at UBC, “UBC researchers developing blueberry-infused food wrap”, air date: March 31, 2021
- **Global News – BC**, segment on blueberry research at UBC, “UBC researchers developing blueberry-infused food wrap”, air date: March 30, 2021

REVIEW ACTIVITIES

- **Academic Journals:** Nature Scientific Reports; Foods (MDPI); Processes (MDPI); African Journal of Food Science and Technology; Applied Food Research (Elsevier), Food and Bioprocess Technology (Springer Nature), CyTA-Journal of Food (Taylor & Francis), Journal of Food Composition and Analysis (Elsevier), Food and Humanity (Elsevier)
- **Book Publishers:** Springer Nature
- **Review tracker:** <https://www.webofscience.com/wos/author/record/AAN-2383-2020>; ORCID

MEMBERSHIPS

- Institute of Food Technologists, USA
- British Columbia Food Technologists
- Canadian Institute of Food Science and Technology
- Indian Dairy Association

VOLUNTARY ACTIVITIES & INTERSHIPS

- AIESEC (World’s largest youth run Global organization) Volunteer experience at Thailand working on United Nation’s Sustainable Development Goal “Quality Education”, 2017
- Internship in dairy products processing and manufacture from Mehsana District Co-operative Milk producers’ Union Ltd.(AMUL Dairy), Gujarat, India, January-June 2016