Short Bio

Dr. Arun Kumar Gupta has a strong academic background in Food Science and Technology, holding Master of Science in Food Science and Technology and Doctorate of Philosophy in Food Engineering and Technology. His research outputs with the highest impact include: 1) establishing the role of naringin in fruit maturity; 2) developing a rapid and cost-effective chart for predicting fruit maturity; 3) creating cost-effective sensors to detect naringin in citrus juice; and 4) designing a laboratory-scale batch-type device for debittering citrus juice. Dr. Gupta's research interests primarily focus on post-harvest technologies, valorization of underutilized food commodities, waste valorization, starch modification, and sensor fabrication. In the early stages of his career, he was honored with the National Summer Research Fellowship, jointly sponsored by INSA (New Delhi), NASI (Allahabad), and IASc (Bengaluru), as well as a SRISTI-GYTI Award by Govt. of India.

CURRICULUM VITAE

1. NAME: ARUN KUMAR GUPTA **e-mail: guptaarunkumar714@gmail.com**
Mobile: +91 8300125483

2. EDUCATION:

- **Doctorate of Philosophy** in Food Engineering & Technology, Tezpur University Napaam, Tezpur Sonitpur, Assam (India) Pin-784028 (2022) (https://shodhganga.inflibnet.ac.in/handle/10603/427147)
- **Master of Science** in Food Science & Technology, Pondicherry University, Kalapet, Puducherry – 605014, India (2017)
- **Bachelor of Science** in Food Technology, Bhaskaracharya College of Applied Sciences, University of Delhi, Dabri Dwarka Rd, Phase 1, Sector 2 Dwarka, New Delhi, 110075, India (2015)

3. EMPLOYMENT HISTORY:

Date	Rank & Position	Department	Institution
October 2022-Present	Assistant Professor	Food Process Technology	Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut, India
September 2022-October 2022	Assistant Professor	Food Science & Technology	Graphic Era (Deemed to be University), India
April 2020-May 2022	Senior Research Fellow	Food Engineering & Technology	Tezpur University, India
April 2018-April 2020	Junior Research Fellow	Food Engineering & Technology	Tezpur University, India
May 2016-July 2016	Summer Research Fellow	Neurospora Laboratory	Centre for DNA Fingerprinting and Diagnostics, Hyderabad, India
April 2014-April 2015	Project Fellow	Food Technology	University of Delhi, India

4. HONOURS & AWARDS:

AWARDS

1. Distinguished Alumni Award-2021 by Bhaskaracharya College of Applied Sciences, University of Delhi.

2. Young Scientist Award in the International Scientist Awards on Engineering, Science and Medicine sponsored by INSO, 2021.
3. Society for Research and Initiatives for Sustainable Technologies and Institutions- Gandhian Young Technological Innovation) Award 2021 for the work entitled "Battery less electrochemical sensor for quantification, removal of naringin and determination of maturity of citrus fruits" (one of the prestigious awards given by Govt. of India).
4. Project entitled "Dual Purpose electrochemical sensor for quantification and removal of bitter compound from citrus fruits" selected under 200 (out of 1200 projects) in the category of Agriculture and Food Processing at Indian International Science Festival 2021.
5. Council of Scientific & Industrial Research-International Travel Grant.
6. Best Scholar Award in the category of Food Engineering and Technology sponsored by International Multidisciplinary Research Foundation, 2020.
7. Young Achiever Award for Doctorate of Philosophy Research work on Fabrication of real time monitoring device for the degradation of bitter compounds in citrus fruit juices by Institute of Scholars (InSC).
8. First prize in the oral presentation in University Grants Commission-Sponsored National Conference on Food safety, Nutritional Security and Sustainability organized by Shyama Prasad Mukherji College for Women, University of Delhi, 2020.
9. Best Poster Award in the category of Post-Harvest Technologies at 27th Indian Convention of Food Scientists and Technologists organized by Association of Food Scientists & Technologists (INDIA) AFST(i)-HQ and Tezpur Chapter, 2020.
10. Young Investigator Award at the National Symposium on Probiotic and Functional Foods on Health Management, India, 2019.
11. Gold medal in Master of Science (Food Science & Technology), Pondicherry University, India, 2019.
12. National Eligibility Test for Assistant Professor by University Grants Commission, India, 2016 and Agriculture Research Scientist Board, India, 2017.
13. Academic achievement award consecutively in 2014 and 2015, University of Delhi.
14. Selected as Best Student from the Dept. of Food Technology, Bhaskaracharya College of Applied Sciences, University of Delhi, 2014-15.
15. Certificate for Best Innovative Idea: DU innovation project BCAS 202 titled "Agro Waste Material Management: From Waste to Wealth", 2015.

SCHOLARSHIPS/ACHIEVEMENTS:

1. National fellowship to pursue Ph.D. by University Grant Commission, India (2018-2022).
2. Summer Research Fellowship sponsored by Indian Academy of Sciences in 2016.
3. Merit scholarship during Post graduation in 2016-2017.
4. 17th rank in 20th AIEEE-PG-2015 examination organized by Indian Council of Agricultural Research (ICAR).
5. Certified UHV Coordinator of the Department.

5. PUBLICATIONS

Citations	820
h-index	17
i10-index	25
Cumulative IF:	220.67

PAPERS IN SCI/SCOPUS INDEXED JOURNALS

PUBLISHED (As a First Author/Corresponding author)

1. **Gupta, A. K**., Boruah, T., Ghosh, P., Ikram, A., Rana, S. S., Bachetti, A., ... & Rustagi, S. (2024). Green chemistry revolutionizing sustainability in the food industry: A comprehensive review and call to action. ***Sustainable Chemistry and Pharmacy***, 42, 101774. **(IF 5.5)**
2. Varshney, A., Rawat, M., **Gupta, A. K.**, Kandpal, R., Choudhary, A., Jha, A. K., ... & Rustagi, S. (2024). Structural and functional insights into *Dioscorea esculenta* (Suthni) flour: a comparative analysis with potato flour for potential application in bakery product. ***Journal of Food Measurement and Characterization***, 1-23. **(IF 2.9)**
3. Ranjan, R., Chauhan, A. K., **Gupta, A. K.**, & Singh, S. (2024). Investigating the effect of combined radiofrequency cold plasma (RF-CP) treatment on techno-functional attributes of Cashewnut. ***Journal of Stored Products Research***, 109, 102406. **(IF 2.7)**
4. Ritika, Bora, B., Ismail, B. B., Garba, U., Mishra, S., Jha, A. K., ... & **Gupta, A. K.** (2024). Himalayan fruit and circular economy: nutraceutical potential, traditional uses, challenges and opportunities. ***Food Production, Processing and Nutrition***, 6(1), 71. **(IF 4)**
5. Choudhary, A., Kumar, A., Kandpal, R., **Gupta, A. K.**, Jha, A. K., Naik, B., ... & Khan, J. M. (2024). Evaluation of secondary metabolites, nutraceutical potential and amino acid profile of fresh dates (*Phoenix dactylifera*) alcoholic beverage. ***Discover Food***, 4(1), 53.
6. **Gupta, A. K.**, Fadzlillah, N. A., Sukri, S. J. M., Adediran, O. A., Rather, M. A., Naik, B., ... & Rustagi, S. (2024). Slaughterhouse blood: A state-of-the-art review on transforming by-products into valuable nutritional resources and the role of circular economy. ***Food Bioscience***, 104644. **(IF 4.7)**
7. **Gupta, A. K.,** Das, T., Jha, A. K., Naik, B., Kumar, V., Rustagi, S., & Khan, J. M. (2024). Encapsulation of debittered pomelo juice using novel *Moringa oleifera* exudate for enrichment of yoghurt: A techno-functional approach. ***Food Chemistry***, 139937. **(IF 8.8)**
8. Joshi, A., **Gupta, A. K.,** Semwal, S., Deoli, N., Rather, M. A., Naik, B., ... & Preet, M. S. (2024). Sustainable solutions for food security: Evaluating pre-treatment technologies in the growing fruits and vegetables industry of India. ***Sustainable Chemistry and Pharmacy***, 39, 101580. **(IF 5.5)**
9. Akhtar, S., **Gupta, A. K.,** Naik, B., Kumar, V., Ranjan, R., Jha, A. K., ... & Rustagi, S. (2024). Exploring pharmacological properties and food applications of *Asparagus racemosus* (Shatavari). ***Food Chemistry Advances***, 4, 100689.
10. Anjali, Jena, A., Bamola, A., Mishra, S., Jain, I., Pathak, N., ... & Akhtar, S. (2024). State-of-the-art non-destructive approaches for maturity index determination in fruits and vegetables: principles, applications, and future directions. ***Food Production, Processing and Nutrition***, 6(1), 56. **(IF 4.7)**
11. Akhtar, S., **Gupta, A. K.**, Varshney, A., Rawat, M., Choudhary, A., Kandpal, R., ... & Preet, M. S. (2023). Comprehensive review of sustainable utilization of *Arenga obtusifolia* Griff. as a food. ***Journal of Agriculture and Food Research***, 100945. (**IF 3.8**)
12. Purohit, P., Rawat, H., Verma, N., Mishra, S., Nautiyal, A., Bhatt, S., ... & **Gupta, A. K.** (2023). Analytical approach to assess anti-nutritional factors of grains and oilseeds: A comprehensive review. ***Journal of Agriculture and Food Research***, 100877. (**IF 3.8**)
13. Kaur, B., Dimri, S., Singh, J., Mishra, S., Chauhan, N., Kukreti, T., ... & Preet, M. S. (2023). Insights into the harvesting tools and equipment's for horticultural crops: From then to now. ***Journal of Agriculture and Food Research***, 100814. (**IF 3.8**)
14. **Gupta, A. K.,** Das, T., Kumar, H., Rastogi, S., Espinosa, E., Rincón, E., ... & Mishra, S. (2023). Novel food materials: Fundamentals and applications in sustainable food systems for food processing and safety. ***Food Bioscience***, 55, (**IF 5.2**)
15. **Gupta, A. K**., Dhua, S., Kumar, V., Naik, B., Magwaza, L. S., Ncama, K., ... & Mishra, P. (2023). Current and emerging applications in detection and removal of bitter compounds in citrus fruit juice: A critical review. ***Food Bioscience***, **55**, (**IF 5.2**).
16. Naik, B., Kumar, V., & **Gupta, A. K.** (2023). Valorization of tender coconut mesocarp for the formulation of ready-to-eat dairy-based dessert (Kheer): Utilization of industrial by-product. ***Journal of Agriculture and Food Research***, *12*, 100572. (**IF 3.8**)
17. Kumar, V., **Gupta, A. K.,** Naik, B., & Makroo, H. A. (2023). Effect of high γ-irradiation dosage on physico-chemical, functional and emulsion properties of almond gum powder**.** ***International Journal of Biological Macromolecules*****,** *235*, 123898. (**IF 8.2**).
18. Rawat, M., Varshney, A., Rai, M., Chikara, A., Pohty, A. L., Joshi, A., ... & **Gupta, A**. K. (2023). A

comprehensive review on nutraceutical potential of underutilized cereals and cereal-based products. ***Journal of Agriculture and Food Research***, 100619. (**IF 3.8**).

19. Akhtar Saamir, **Gupta Kumar Arun***, Kumar Himanshu, Manufacturing and Applications of Cellulosic Films in Packaging: An Alternative for Plastic Films, ***Current Nutrition & Food Science 2023***; 19. https://dx.doi.org/10.2174/1573401319666230609140552 (**IF 0.9**).
20. Arora, S., Kataria, P., Nautiyal, M., Tuteja, I., Sharma, V., Ahmad, F., ... & **Gupta, A. K.** (2023). Comprehensive Review on the Role of Plant Protein As a Possible Meat Analogue: Framing the Future of Meat. ***ACS omega***, 8, 26, 23305–23319 (**IF 4.1**)
21. **Gupta, A. K.,** Kumar, V., Naik, B., Rizwana, S., & Ranjan, R. (2023). Mapping of nutraceutical and sensorial properties of stuffed red chilli pickle: Effect of storage on quality. ***Journal of Agriculture and Food Research***, *11*, 100504. (**IF 3.8**)
22. **Gupta, A. K**., Rather, M. A., & Mishra, P. (2023). Design and development of laboratory scale batch type device for debittering of bitter citrus juice. ***Journal of Food Process Engineering***, 46(3), e14265. (**IF 3.0**)
23. **Gupta, A. K.,** Das, S., Sahu, P. P., & Mishra, P. (2022). Design and development of IDE sensor for naringin quantification in pomelo juice: An indicator of citrus maturity. ***Food Chemistry***, 377, 131947. (**IF 8.8**)
24. **Gupta, A. K.,** Pathak, U., Tongbram, T., Medhi, M., Terdwongworakul, A., Magwaza, L. S., ... & Mishra, P. (2022). Emerging approaches to determine maturity of citrus fruit. ***Critical Reviews in Food Science and Nutrition,*** 62(19), 5245-5266. (**IF 10.2**)
25. **Gupta, A. K**., Sahu, P. P., & Mishra, P. (2021). Ultrasound aided debittering of bitter variety of citrus fruit juice: Effect on chemical, volatile profile and antioxidative potential. ***Ultrasonics Sonochemistry***, 81, 105839. (**IF 8.4**)
26. **Gupta, A. K.,** Dhua, S., Sahu, P. P., Abate, G., Mishra, P., & Mastinu, A. (2021). Variation in phytochemical, antioxidant and volatile composition of pomelo fruit (*Citrus grandis* (L.) osbeck) during seasonal growth and development. ***Plants,*** 10(9), 1941. (**IF 4.5**)
27. Jha, A. K., Kumari, S., **Gupta, A. K.,** & Shashank, A. (2021). Improvement in pasting, thermal properties, and in vitro digestibility of isolated Amaranth starch (*Amaranthus cruentus* L.) by addition of almond gum and gum ghatti powder. ***Journal of Food Processing and Preservation***, 45(10), e15829. (**IF 2.60**)
28. **Gupta, A. K.,** Mishra, P., Senapati, M., & Sahu, P. P. (2021). A novel electrochemical device for naringin quantification and removal from bitter variety of citrus fruits. ***Journal of Food Engineering***, 306, 110637. (**IF 5.5**)
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31. Shashank, A., **Gupta, A. K.,** Singh, S., & Ranjan, R. (2021). Biogenic amines (BAs) in meat products, regulatory policies, and detection methods. ***Current Nutrition & Food Science,*** 17(9), 995-1005. (**IF 0.9**)
32. **Gupta, A. K.,** Jha, A. K., & Singhal, S. (2021). Optimisation of modification parameters for amaranth starch for the development of pudding and study of the quality traits of developed pudding. ***Acta Alimentaria***, 50(1), 22-32. (**IF 1.1**)
33. **Gupta, A. K.,** Rather, M. A., Kumar Jha, A., Shashank, A., Singhal, S., Sharma, M., ... & Mastinu, A. (2020). *Artocarpus lakoocha* Roxb. and *Artocarpus heterophyllus* Lam. flowers: New sources of bioactive compounds. ***Plants***, 9(10), 1329. (**IF 4.5**) (*Editor's Choice Article*)
34. **Gupta, A. K.,** Koch, P., & Mishra, P. (2020). Optimization of debittering and deacidification parameters for Pomelo juice and assessment of juice quality. ***Journal of Food Science and Technology***, 57, 4726-4732. (**IF 3.1**)
35. **Gupta, A. K.,** Pathak, U., Medhi, M., Mastinu, A., Sikarwar, M. S., & Mishra, P. (2020). Botanical,

chemical and pharmacological properties of *Artocarpus lakoocha* (monkey fruit): A review. ***Agricultural Reviews***, 41(4), 305-316.

PUBLISHED (As a contributing author)

1. Joshi, A., Kumar, V., Naik, B., Shikha, D., Rustagi, S., & **Gupta, A. K.** (2024). Anti-diabetic potential of Rubus species: linking conventional knowledge with scientific developments: a review. ***Food Production, Processing and Nutrition***, 6(1), 87. **(IF 4)**
2. Bhatt, S. C., Kumar, V., Naik, B., **Gupta, A. K.**, Saris, P. E. J., Kumar, V., ... & Rustagi, S. (2024). *Ficus auriculata* Lour., an underutilized nonconventional alternative fruit to *Ficus carica* with nutraceutical potential. ***Discover Sustainability***, 5(1), 1-14. **(IF 2.4)**
3. Thapa, D., Kumar, V., Naik, B., Kumar, V., **Gupta, A. K.,** Mohanta, Y. K., ... & Rustagi, S. (2024). Harnessing probiotic foods: managing cancer through gut health. ***Food Science and Biotechnology***, 1-20. **(IF 2.4)**
4. Naik, B., Richa, S., Bharadwaj, S., Mishra, S., Kumar, V., Kumar, V., ... & Preet, M. S. (2024). Utilizing marine algal metabolites to fight neurodegenerative diseases. ***Frontiers in Marine Science***, 11, 1370839. **(IF 3.7)**
5. Naik, B., Kumar, V., Rizwanuddin, S., Mishra, S., Kumar, V., Saris, P. E. J., ... & Rustagi, S. (2024). Biofortification as a solution for addressing nutrient deficiencies and malnutrition. ***Heliyon.*** **(IF 4)**
6. Naik, B., Mishra, R., Kumar, V., Mishra, S., Gupta, U., Rustagi, S., ... & Rizwanuddin, S. (2023). Micro-algae: Revolutionizing food production for a healthy and sustainable future. ***Journal of Agriculture and Food Research***, 100939. (**IF 3.8**)
7. Ranjan, R., Gupta, A. K., Pandiselvam, R., Chauhan, A. K., Akhtar, S., Jha, A. K., ... & Preet, M. S. (2023). Plasma treatment: An alternative and sustainable green approach for decontamination of mycotoxin in dried food products. ***Journal of Agriculture and Food Research***, 100867. (**IF 3.8**)
8. Bhatt, S.C., Naik, B., Kumar, V. et al. Untapped potential of non-conventional rubus species: bioactivity, nutrition, and livelihood opportunities. ***Plant Methods*** 19, 114 (2023). https://doi.org/10.1186/s13007-023-01094-y **(IF 6.1)**
9. Verma, A., Naik, B., Kumar, V., Mishra, S., Choudhary, M., Khan, J. M., ... & Gupta, S. (2023). Revolutionizing Tuberculosis Treatment: Uncovering New Drugs and Breakthrough Inhibitors to Combat Drug-Resistant Mycobacterium tuberculosis. ***ACS Infectious Diseases*** **(IF 5.3)**
10. Bhatt, S. C., Kumar, V., **Gupta, A. K.,** Mishra, S., Naik, B., Rustagi, S., & Preet, M. S. (2023). Insights on bio-functional properties of *Myrica esculenta* plant for nutritional and livelihood security. ***Food Chemistry Advances***, 3, 100434.
11. Kumar, V., Kohli, D., Naik, B., Ratore, A., **Gupta, A. K.,** Khan, J. M., ... & Rustagi, S. (2023). Effect of heat treatment on the quality of citrus juices. ***Journal of King Saud University-Science***, 35(7) 102819 **(IF 3.89)**
12. Naik, B., Kumar, V., Goyal, S. K., Tripati, A. D., Khan, J. M., Irfan, M., Bhatt, S.C., **Gupta, A. K.,** & Rustagi, S. (2023). Production, characterization, and application of novel fungal pullulanase for fruit juice processing. ***International Journal of Biological Macromolecules***, 248, 1-10. (**IF 8.2**)
13. Naik, B., Kohli, D., Walter, N., **Gupta, A. K.,** Mishra, S., Khan, J. M., ... & Kumar, V. (2023). Whey-carrot based functional beverage: Development and storage study. ***Journal of King Saud University-Science***, 102775. (**IF 3.89**)
14. Makroo, H. A., Manzoor, N., Rather, J. A., Ashraf, Q. S., **Gupta, A. K**., Bora, J., ... & Dar, B. N. (2023). Morphological, Functional, and Physico-chemical Properties of Non-Conventional Starch Derived from Discarded Immature Apples. ***Starch-Stärke***, 2200284. (**IF 2.3**)
15. Yumnam, M., Marak, P. R., **Gupta, A. K.**, Rather, M. A., & Mishra, P. (2023). Effect of pomelo peel essential oil on the storage stability of a few selected varieties of freshwater fish. ***Journal of Agriculture and Food Research***, 11, 100472. (**IF 3.8**)
16. Rather, M. A., Gupta, K., **Gupta, A. K.**, Mishra, P., Qureshi, A., Dutta, T. K., ... & Mandal, M. (2023). Phytochemical analysis and demonstration of antioxidant, antibacterial, and antibiofilm activities of ethnomedicinal plants of north east India. ***Applied Biochemistry and Biotechnology***, 195(5),

3257-3294. (**IF 3.0**)

17. Naik, B., Kumar, V., Rizwanuddin, S., Chauhan, M., Choudhary, M., **Gupta, A. K.,** ... & Rustagi, S. (2023). Genomics, Proteomics, and Metabolomics Approaches to Improve Abiotic Stress Tolerance in Tomato Plant. ***International Journal of Molecular Sciences***, *24*(3), 3025. (**IF 5.6**)
18. Naik, B., Kumar, V., Rizwanuddin, S., Chauhan, M., **Gupta, A. K.,** Rustagi, S., ... & Gupta, S. (2023). Agro-industrial waste: a cost-effective and eco-friendly substrate to produce amylase. ***Food Production, Processing and Nutrition***, *5*(1), 30. (**IF 5.0**)
19. Dhua, S., **Gupta, A. K**., & Mishra, P. (2022). Aerogel: functional emerging material for potential application in food: a review. ***Food and Bioprocess Technology***, 15(11), 2396-2421. (**IF 5.6**)
20. Das, T., Das, P., **Gupta, A. K.,** & Mishra, P. (2022). Fabrication of flaxseed extracted gel and gellan gums containing functional sol and its application on the storage stability of matured banana. ***Journal of Food Processing and Preservation***, 46(2), e16235. (**IF 2.60**)
21. Singh, S., Tripathi, A. D., Chauhan, A. K., & **Gupta, A. K.** (2021). Production of beetroot (Beta vulgaris L.) wine using different Saccharomyces strains and study of physicochemical and sensorial characteristics. ***Journal of Food Science and Technology,*** 58(11), 4442-4449. (**IF 3.1**)
22. Akasapu, K., Ojah, N., **Gupta, A. K.,** Choudhury, A. J., & Mishra, P. (2020). An innovative approach for iron fortification of rice using cold plasma. ***Food Research International***, 136, 109599. (**IF 8.1**)
23. Das, D., Das, D., **Gupta, A. K.**, & Mishra, P. (2020). Drying of *Citrus grandis* (pomelo) fruit juice using block freeze concentration and spray drying. ***Acta Alimentaria***, 49(3), 295-306. (**IF 1.1**)

Patents/ IPR

1. Mahek Rawat, Adity Varshaney, Himanshu Kumar, **Arun Kumar Gupta**, Bindu Naik, Vijay Kumar (2023). Nutritional chocolate composition and process thereof. **Indian patent Application number** 202311010951, Publication 05/05/2023
2. Bindu Naik, Vijay Kumar, Rakita, Akshansh Sharma, Yojak Mer, **Arun Kumar Gupta**, Saurav Chandra Bhatt, Pallavi Singh (2023). A Distinct Fortified Dry Wine from Whole-Fruit Watermelon and Method Thereof. **Indian Patent, Application no.** 202311042593 A, Publication 21/07/2023
3. Jasmeet Kour, Vishal Sharma, **Arun Kumar Gupta**, Rajeev Ranjan, Maanas Sharma, Renu Sharma, Sangeeta. IoT Vertical Autoclave has been filed successfully. **Indian patent Application number** 202311013955. Publication 17/03/2023
4. **Arun Kumar Gupta**, Bindu Naik, Vijay Kumar. A freeze dried debittered pomelo juice incorporated functional yoghurt and preparation method thereof. **Indian patent Application number** 202311067314 A. Publication 27/10/2023
5. **Arun Kumar Gupta**, Aditya Choudhary, Aditya Kumar, Rohan Kandpal, Bindu Naik, Vijay Kumar. A method of preparation of wine using fresh dates fruits . **Indian patent Application number** 202411041038 A. Publication 21/06/2024

Book Published/ Under production

- Citrus Fruits and Juice: Processing and Quality Profiling. Springer Nature Singapore, 2024. Editors: Arun Kumar Gupta, Jasmeet Kour, Poonam Mishra. ISBN: 9819986982 (https://link.springer.com/book/10.1007/978-981-99-8699-6).
- Edible Flowers: Health Benefits, Nutrition, Processing, and Applications. Elsevier, USA. Editors: Arun Kumar Gupta, Vijay Kumar, Bindu Naik, Poonam Mishra. ISBN: 9780443137693 (https://shop.elsevier.com/books/edible-flowers/gupta/978-0-443-13769-3).
- Shelf-life extension of fruit juices by Novel Food Processing Methods: Challenges and Future Prospect. CRC Press. Editors: Hilal A Makroo, B. N. Dar, Arun Kumar Gupta.

Book Editing

- Novel Techniques for Food Quality Analysis and Safety: Fundamentals, Scope, Feasibility and Challenges. CRC Press. Editors: Poonam Mishra, Yashi Srivastava, Arun Kumar Gupta.

- Underutilized Tuber Crops of the Himalayan Region. Elsevier, USA. Editors: Arun Kumar Gupta, Pradeep Singh Negi.
- Adaptogenic Properties of Medicinal Plants. CRC Press. Editors: Meenakshi Garg, Arun Kumar Gupta, Neha Singh.
- Utilization of Indian Medicinal Botanicals in Food Fortification and Nutraceutical, Springer Nature Singapore, Editors: Meenakshi Garg, Arun Kumar Gupta, Neha Singh.

BOOK CHAPTERS

1. Joshi, A., **Gupta, A. K.,** Jha, A. K., Naik, B., Kumar, V., & Rustagi, S. (2024). Nutraceutical Potential of Staple Food Crops. Herbal Nutraceuticals: Products and Processes, 329-345.
2. **Arun Kumar Gupta**, Muzamil A. Rather, Shuvam Bhuyan. Marine biopolymers as insulating/ coating agents and self-cleaning materials Marine Biopolymers: Processing, Functionality and Applications.
3. Ritika et al. (2024). Traditional and Underutilized Fruits and Vegetables for Attaining Zero Hunger. In: Chakraborty, R., Mathur, P., Roy, S. (eds) Food Production, Diversity, and Safety Under Climate Change. Advances in Science, Technology & Innovation. Springer, Cham. https://doi.org/10.1007/978-3-031-51647-4_8.
4. Mansi, Monika, **Gupta, A.K.,** Naik, B., Kumar, V., Jha, A.K. (2024). Role of Citrus Juice Sacs. In: Gupta, A.K., Kour, J., Mishra, P. (eds) Citrus Fruits and Juice. Springer, Singapore. https://doi.org/10.1007/978-981-99-8699-6_11
5. **A. K. Gupta**, M. A. Rather, S. Bhuyan, M. S. Sikarwar, V. Kumar, B. Naik, and P. Mishra, in Phytochemistry and Nutritional Composition of Significant Wild Medicinal and Edible Mushrooms. Traditional Uses and Pharmacology, ed. A. Sharma, G. Bhardwaj, and G. A. Nayik, Royal Society of Chemistry, 2023, ch. 9, pp. 201-220. https://doi.org/10.1039/BK9781837672097-00201
6. **Gupta, A. K.**, Rather, M. A., Bhuyan, S., Naik, B., Sikarwar, M. S., & Mishra, P. (2024). 301Tremella fuciformis. In Edible and Medicinal Mushrooms of the Himalayas (pp. 301-316). CRC Press.Taylor & Francis Group, LLC, CRC-Press Florida, USA.
7. Thakur, R., Irom, B. S., Mir, M. B., Singha, P., Devi, Y. B., Das, T., ... & **Gupta, A. K.** (2023). Extraction, structural properties, and applications of gum tragacanth. In Natural Gums (pp. 373-415). Elsevier.
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20. Kalita, M., Medhi, M., Yumnam, M., **Gupta, A. K.**, & Mishra, P. (2021). Synthesis of Carbon Dots from Citrus limon Peel by Microwave-Assisted Process and Its Application for Detection of Ferric Ion (Fe^{3+}) and Development of pH Paper. In *Food Loss and Waste Reduction* (pp. 83-103). Apple Academic Press.

Popular Articles

1. Navya, N., Gupta, A. K. Edible Electronics: A Future Food, Food Infotech, March, 1-3, 2024.
2. Navya, N., Kumar, H., Gupta, A. K. Types and Processing Methods of Pickles: An Overview, Food Infotech, July, 16-20, 2023.
3. Gusain, S., Joshi, A., Gupta, A. K. An Overview on the Recent Developments in the Bio-Synthesis of Food Colourants and Additives, Food Infotech, November 16-20, 2022.
4. Gupta, A. K., Mishra, P. Edible Flowers: A Novel Source of bioactive Compounds in the Food Matrix, Food Infotech, September 16-19, 2022.
5. गुप्ता, ए.के., और मिश्रा, पी. (2022). खाने योग्य फूल: जैव सक्रिय और औषधीय गुणों का अप्रयुक्त स्रोत, रक्षा खाद्य विज्ञान पत्रिका, 31, 5-17.
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7. गुप्ता, ए.के., और मिश्रा, पी. (2021). पूर्वोत्तर भारत के कुछ अल्पविकसित फल, रक्षा खाद्य विज्ञान पत्रिका, 29, 8-17.
8. Gupta, A. K., Koch, P., Shashank, A., Medhi, M., & Mishra, P. (2020). Fruit juice preservation using UV irradiation: A novel approach for fruit juice industries. Indian Food Industry Mag, 2(5), Sep-Oct, 23-33.
9. Gupta, A. K., Sahu, P. P., Mishra, P. (2020). Fabrication of real time monitoring device for the degradation of bitter compounds in citrus fruit juices in the proceeding of UGC Sponsored National Conference on Food safety, Nutritional Security and Sustainability organized by Shyama Prasad Mukherji College for Women, University of Delhi, 2020. ISBN: 978-81-942875-0-6.
10. Gupta, A. K., Medhi, M., and Mishra, P. (2018). "Optimization of process variables and extension of shelf life of instant mix of til pitha" in the proceeding of Food and Bioprocess Research for Industrial Application organized by Pub Kamrup College, 15-16 September, 2017 (ISBN No: 978-81-93152-50-9).
11. S. K. Shukla, Sagar, Naman, Deepika, Sundaram, Prateeksha, Ankur, Arun Kumar Gupta, Srishti, Vaishali, Rakesh, Rizwana, A. Bharadvaja and G. C. Dubey (2015). Extraction of Cellulose Micro Sheets from Rice Husk: A Scalable Chemical Approach. DU Journal of Undergraduate Research and Innovation, 1(3): 187- 194.

9. SUPERVISION

03 Ph.D. Supervision (Ongoing)
01 Ph.D. Co-supervision
12 MSc students
07 Undergraduate students

10. TEACHING

TEACHING at GEU (September 2022-October 2024)

a) UNDERGRADUATE COURSES (Developed, coordinated, taught and assessed)

Food Hygiene and Sanitation
Principles and Processing of Fruits and Vegetables
Food Processing and Preservation Technology
Technology of Cereal, Pulses and Oilseeds
Technology of Meat, Poultry and Fish Processing
Technology of Spices and Plantation Crops

b) POSTGRADUATE
Curriculum development of M.Sc. Food Technology

Processing of Livestock and Marine
Milling Technology and Processing of Grains & Oilseeds
Food Product Development & Entrepreneurship
Post-Harvest Management of Fruits & Vegetables

11. RESEARCH FUNDING

- Seed Money from Graphic Era (Deemed to be University) to work on *Valorization of underutilized tubers of Uttarakhand for possible food application.*
- Development of cost-effective field-based sensor for determination of maturity indices of Pomelo fruit (Citrus grandis)" funded by Tezpur University under Research and Innovation grant (File no. DoRD/RIG/10-73/1544-A).
- Funding from University Grant Commission, Govt. of India for Ph.D.

12. Reviewer of:

Food Engineering (Elsevier)
Food Research International (Elsevier)
Journal of Agriculture and Food Research (Elsevier)
Food Chemistry (Elsevier)
Food Composition and Analysis (Elsevier)
International Journal of Biological Macromolecules (Elsevier)
Journal of polymers and the environment (Springer Nature)
Discover Foods (Springer Nature)
Food Bioscience (Elsevier)
Journal of Food Science & Nutrition (Wiley)
Journal of Essential Oil-Bearing Plants (Taylor and Francis)
Current Nutrition and Food Science (Bentham Science)
BMC Complementary Medicine and Therapies (Springer Nature)
Biomass Conversion and Biorefinery (Springer Nature)

Review Editor/Member of Editorial Board:

1. Frontiers in Plant Science (Crop and Product Physiology) (https://loop.frontiersin.org/people/2585094/bio)
2. Journal of Sustainable Food Systems (https://systems.enpresspublisher.com/index.php/JSFS/about/editorialBoard)
3. Journal of Nutraceuticals and Health (JNH) https://www.reseaprojournals.com/jnh/editorial_board

Membership in academic/professional societies (past & present):

Life time member of Association of Food Scientists and Technologists (India) AFSTi
Member of International Society of Food Engineering

Life time professional member of Institute of Scholars (InSc)

13. ADMINISTRATIVE ROLES at GEU, India:

Department, School or disciplinary area

- Class Coordinator of B.Sc. Nutrition & Dietetics (July 2024-October 2024) and B.Sc. (H) Food Technology (Sep 2022-October 2024)
- Member of Purchase committee, Department of Food Science & Technology, Graphic Era (Deemed to be University), India.
- Member of Board of Studies, Department of Food Science & Technology, Graphic Era ((Deemed to be University), India (September 2022- October 2024).
- Member of Board of NEP syllabus committee, Department of Food Science & Technology, Graphic Era (Deemed to be University), India (September 2022- October 2024).
- Alumni Coordinator of Department of Food Science & Technology, Graphic Era (Deemed to be University), India (September 2022- October 2024).
- Training & Placement Coordinator of Department of Food Science & Technology, Graphic Era (Deemed to be University), India (September 2022- October 2024).

14. Role in Conference/Workshop

- Organizing Secretory in International Conference on Food Processing for the Future: Sustainable Solutions for Quality and Safety in Global Food System (IFPFS-2024) 18th-19th October, 2024 Organized by Department of Food Science & Technology, Graphic Era (Deemed to be University) in association with INSA-IUFoST/AFST(I).
- Co-Organizing Secretory in International Conference on Recent Advances in Nutraceuticals and Functional Foods' (RANFF-2023), jointly organized by Dept. of Food Technology, Dept. of Biotechnology and Dept. of Microbiology, 22-23, May 2023.
- Treasurer in International Workshop on Sustainable Microalgae solutions: Global Perspective on Biomass, Biofuel and Food Production on 19-23rd Feb 2024.

15. Activities organized

- Organized Dry cooking competition on 15th December 2022.
- Organized one week long Induction Program for Fresher Students, 2023.
- Organized 2 days educational trip to ICAR-IVRI, Barely, Uttar Pradesh, India on 27-28th Feb 2023.
- Organized one day educational trip to Mother Dairy, New Delhi, India.
- Organized 7 days long educational trip to Vallonné Vineyards, Igatpuri, Nasik, India from 31 Oct to 6 Nov 2023.
- Organized 3 days long educational trip to ICAR-IVRI, Barely, Uttar Pradesh, India from 4-6 March 2024.
- Organized one week long Induction Program for Fresher Students, 2024.
- Organized one week long National Nutrition Week from 1 Sept to 7 Sept 2024.
- Organized 4 days long educational trip to CSIR-IHBT, Palampur & Himalayan Brew Tea Estate, Himachal Pradesh, India from 9-12 Sep 2024.

16. RESEARCH IMPACT:

Research outputs with highest impact are:

- Studied the effect of pomelo fruit maturity on growth attributes, biochemical properties, quality attributes, and phytochemical properties. Developed a color chart for ripening stages and established a correlation between color parameters and quality attributes using an artificial neural network.
- Developed electrochemical sensors (SiO_2/Si and IDE-PCB substrate-based) for quantifying naringin content and determining pomelo fruit maturity. High selectivity and sensitivity achieved, enabling identification of the appropriate plucking period and phytochemical content.

- Created a laboratory-scale debittering device using naringinase enzyme and macroporous resin, effectively removing bitterness from bitter citrus fruit. Significant reduction in naringin content and increased non-bitter compounds, TSS, and glucose content observed.
- Compared developed devices with conventional debittering techniques (resin-column method and enzymatic debittering). Enzyme-resin debittering device showed superior performance in retaining physicochemical and bioactive compounds in citrus juice.

SIGNIFICANCE OF RESEARCH CONTRIBUTIONS:

1. The quality and eating attributes of fruit are closely linked factors that significantly impact marketability and are always correlated with harvest maturity. Citrus fruits, known for their bioactive components, are highly consumed, but the bitterness of their juice poses a challenge for consumer acceptance. Consequently, determining maturity in the citrus industry at the commercial level is a persistent challenge. Traditionally, maturity determination relies on physical parameters and a few ambiguous factors, leading to low specificity and unreliable information, resulting in the wastage and economic loss of citrus fruit. In our research, we investigated how maturity affects the growth characteristics, the relationship between naringin and maturity, as well as the biochemical properties, quality characteristics, and phytochemical properties of pomelo fruit. Notably, we provided the first confirmatory evidence of the correlation between maturity and naringin in pomelo fruit (Gupta et al., 2021; Gupta et al., 2022). Our findings revealed the following: 1) The growth characteristics, colour, and biochemical properties of juice changed in a regular way as the fruit ripened. 2) The ripening index, chlorophyll, and beta-carotene content also changed in a regular way as the fruit ripened. 3) The main phytochemical compounds were found to be metabolised in a regular way during fruit development, with some pomelo tissues showing a fluctuating trend that suggests they depend on the season. Additionally, we established a correlation between colour parameters and quality attributes using an artificial neural network, with the 3-5-5 architecture yielding the best results.

2. Naringin is a flavonoid glycoside found in citrus fruits, particularly grapefruits and pomelos. It is responsible for the bitter taste of the fruit's juice. In the food industry, naringin is sometimes used as a natural flavouring agent and as a bitterness inhibitor in certain products. However, its bitter taste can also pose a challenge for consumer acceptance, especially in citrus juice products. Therefore, understanding the relationship between naringin content and fruit maturity is essential for optimising the quality and marketability of citrus fruits and their products. To address this, electrochemical sensors based on SiO_2/Si and IDE-PCB substrates were developed to quantify naringin content and determine fruit maturity in pomelo. The performance of the IDE-PCB-based sensor was excellent in terms of reproducible results, with no significant change in the peel-off of sensing material during storage. The developed sensor reveals 180–220 DAFS as an appropriate plucking period with an appreciable content of phytochemicals. The developed sensor was found to be cost-effective (INR 10) and could be reused for 10 cycles. The IDE-PCB-based sensor demonstrated reproducible results, and its sensing material remained intact during storage. The developed sensor was cost-effective and could be reused for ten cycles. The research outcomes were presented at various international and national conferences, winning the first prize. Additionally, the study received recognition at the *Society for Research and Initiatives for Sustainable Technologies and Institutions—Gandhian Young Technological Innovation, 2021, and was selected in the category of More From Less for Many (one of the prestigious awards given by the Govt. of India)*. The outcome of the study was published in reputed journals like the Journal of Food Engineering (Gupta et al., 2021) and Food Chemistry (Gupta et al., 2022).

3. Later, to increase the commercial value of citrus juice as other tropical fruits, a laboratory-scale debittering device was developed for the bitter variety of citrus fruit. The naringinase enzyme was adsorbed on the macroporous resin and mixed with a PVA solution. The mixture was then deposited on the IDE-PCB substrate and dried under vacuum conditions, followed by connection. In addition, activated resin (AR) and non-activated resin (NAR)-based devices were developed with a similar procedure as enzyme-resin-based devices. The developed device can handle 70–100 mL of juice in a batch manner. The hydrolysis of naringin as a function of time was considered one of the important parameters to assess the performance of the device. During 160 min of treatment, 53% of naringin content was reduced, while naringenin (a (non-bitter compound), TSS, and glucose content increased linearly as the exposure time

increased. The developed enzyme-resin debitering device was compared with an AR and NAR-based debitering device, and it was noticed that the juice treated using an AR-based device had a reduced naringin content of 32% after 5 minutes of treatment. However, the removal of naringin using a NAR-based device was not so significant; thus, it doesn't show any current response. A hemolytic assay was done to test the toxicity of materials used to make devices. However, at a concentration of 0.5–1 µL, there was no significant toxicity in the treated juice (Gupta et al., 2020; Gupta et al., 2021; Gupta et al., 2022; Gupta et al., 2023; Gupta et al., 2023; Gupta et al., 2023).

4. The utilisation of starch from non-conventional sources can contribute to food security, sustainable agriculture, and reduced environmental impact, as these sources often require less water, land, and resources compared to traditional starch crops. Additionally, exploring non-conventional starch sources can add value to underutilised crops and promote agricultural diversification. Modification of starch using exudates improves or alters native properties such as pasting properties, thermal stability, and digestibility. Modified starch can be used to produce products like pudding, desserts, custard, and soup powder (Gupta et al., 2020; Jha et al., 2021). The agri-food industry generates a significant amount of fruit and vegetable processing waste, which opens up new opportunities for research to support zero-waste ideas. These wastes are a good source of bioactives like phytochemicals and dietary fibres that are beneficial to health, but they haven't been utilised due to a lack of processing technologies. These wastes show great promise as possible functional food ingredients to meet technological and functional needs for developing health-promoting products with added value (Naik et al., 2023). Some manuscripts are under preparation for the utilisation of agricultural waste and tubers for potential food applications.

My current research is focused on: 1) valorising underutilised food commodities, especially tubers and fruits; 2) valuing the addition of agricultural waste such as peels and residues to food formulation; 3) starch isolation and characterization for potential food applications.

ABSTRACTS, PRESENTATIONS TO PROFESSIONAL MEETINGS (presenter's name is bold)

8. **Gupta, A. K**, Sahu, P. P., Mishra, P. Sustainable approaches in Food Engineering and Technology (SAFETy-2021), organized by Tezpur University, India and University of Georgia, USA
7. **Gupta, A. K**, Sahu, P. P., Mishra, P. 2nd International Conference on Environmental, Agricultural, Chemical and Biological Sciences, organized by Voice of Indian Concern for the Environment.
6. **Gupta, A. K**, Sahu, P. P., Mishra, P. IFT's Annual Event and Food Expo, organized by SHIFT20, Chicago, IL, USA.
5. **Gupta, A. K**, Mishra, P. International conference on "Advance in computing communication and control" organized by IIMT University, Meerut, 16th-17th June 2020.
4. **Gupta, A. K**, Sahu, P. P., Mishra, P. UGC Sponsored National Conference on *"Food safety, Nutritional Security and Sustainability"* organized by Shyama Prasad Mukherji College for Women, University of Delhi, 6-7th March 2020.
3. **Gupta, A. K**, Sahu, P. P., Mishra, P. National conference on "*27th Indian Convention of Food Scientists and Technologists*" organized by AFST(I)-HQ and Tezpur Chapter, 30th January-1st February 2020.
2. **Gupta, A. K**, Sahu, P. P., Mishra, P. National symposium on "*Probiotics and Functional Foods on Health Management*" organized by Tezpur University, India, 4-5 March, 2019.
1. **Gupta, A. K**, Sahu, P. P., Mishra, P. International conference on "*Recent Advances in Food Processing Technology*" organized by Indian Institute of Food Processing Technology, Tamil Nadu, India, 17-19 August 2018.

Referees

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