

LIST OF PUBLICATIONS, AWARDS & HONORS

Research Articles from Doctoral Research

1. Ranjan, S., Nandita, D., Sudandiradoss, C., Ramalingam, C. and Ashutosh, K. (2015), 'A novel approach to evaluate titanium dioxide nanoparticle-protein interaction through docking: an insight into the mechanism of action', *Proceedings of the National Academy Of Sciences, India - Section B: Biological Sciences* **87**(3), 937–943.
2. Ranjan, S., Nandita, D., Bhavapriya, R., Ganesh, S. A., Chidambaram, R. and Ashutosh, K. (2016), 'Microwave-irradiation-assisted hybrid chemical approach for titanium dioxide nanoparticle synthesis: microbial and cytotoxicological evaluation', *Environmental Science and Pollutions Research* **23**, 12287-302.
3. Ranjan S. and Chidambaram, R. (2016), 'Titanium dioxide nanoparticles induce bacterial membrane rupture by reactive oxygen species generation', *Environmental Chemistry Letters* **14**, 487-494.
4. Ranjan, S., Nandita, D., Srivastava, P. and Chidambaram, R. (2016), 'A spectroscopic study on interaction between bovine serum albumin and titanium dioxide nanoparticle synthesized from microwave-assisted hybrid chemical approach', *Journal of Photochemistry and Photobiology, B: Biology* **161**, 472-481.
5. Ranjan, S., Dasgupta, N., Mishra, D. and Ramalingam, C. (2018), 'Involvement of Bcl-2 activation and G1 cell cycle arrest in apoptosis induced by hybrid approach synthesized titanium dioxide nanoparticles in colon cancer cells', *Chemico Biological Interaction* (Under Review)
6. Ranjan, S., Dasgupta, N. and Chidambaram, R. (2018), 'Acute and sub-chronic toxicity of titanium dioxide nanoparticles synthesized by microwave-irradiation-assisted hybrid chemical approach', *In Vitro Cellular & Developmental Biology – Animal* (Under Review)
7. Ranjan, S., Dasgupta, N., Sudandiradoss, C., Ramalingam, C. and Kumar, A. (2017), 'Titanium dioxide nanoparticle-protein interaction explained by

docking approach', *International Journal of Nanomedicine* In press.

Review Articles from Doctoral Research

1. Ranjan, S., Dasgupta, N., Deepa, M., Chidambaram, R., Ashutosh, K. and Rishi, S. (2015), 'Nanotechnology in agro-food: from the field to plate', *Food Research International*, **69**, 381-400.
2. Ranjan, S., Dasgupta, N., Arkadyuti, R. C., Melvin, S. S., Chidambaram, R., Rishi, S. and Ashutosh, K. (2014), 'Nanoscience and nanotechnologies in food industries: opportunities and research trends', *Journal of Nanoparticle Research* **16**: 2464.

Collaborative Scientific Publication

1. Dasgupta, N., Ranjan, S., Mishra, D. and Ramalingam, C. (2018), 'Thermal co-reduction engineered silver nanoparticles induce oxidative cell damage in human colon cancer cells through inhibition of reduced glutathione and induction of mitochondria-involved apoptosis', *Chemico Biological Interaction* Under Review
2. Dasgupta, N., Ranjan, S. and Chidambaram, R. (2018), 'Acute and sub-acute toxicity of silver nanoparticles engineered by thermal co-reduction approach', *In Vitro Cellular & Developmental Biology – Animal* Under Review
3. Ranjan, S., Dasgupta, N., Sudandiradoss, C., Ramalingam, C. and Kumar, A. (2017), 'Titanium dioxide nanoparticle-protein interaction explained by docking approach', *International Journal of Nanomedicine* In press.
4. Aditi, J., Ranjan, S., Dasgupta, N. and Chidambaram, R. (2018), 'Nanomaterials in food and Agriculture: an overview on their safety concerns and regulatory issues', *Critical Reviews in Food Science and Nutrition* **58**, 297-317.
5. Dasgupta, N., Ranjan, S. and Chidambaram, R. (2017), 'Applications of Nanotechnology in agriculture and water quality management', *Environmental Chemistry Letters* **15**, 591–605.

6. Shukla, A., Dasgupta, N., Ranjan, S., Singh, S. and Chidambaram, R. (2017), 'Nanotechnology towards prevention of anemia and osteoporosis: from concept to market', *Biotechnology & Biotechnological Equipment* **31**, 863–879.
7. Walia, N., Dasgupta, N., Ranjan, S., Chen, L. and Chidambaram, R. (2017), 'Fish oil based vitamin D nanoencapsulation by ultrasonication and bioaccessibility analysis in simulated gastro intestinal tract', *Ultrasonics Sonochemistry* **39**, 623–635.
8. Balaji, S., Mandal, B. K., Ranjan, S., Dasgupta, N. and Ramalingam, C. (2017), 'Nano-zirconia – Evaluation of its antioxidant and anticancer activity', *Journal of Photochemistry & Photobiology, B: Biology* **170**, 125-133
9. Maddinedi, S. B., Mandal, B. K., Patil, S. H., Andhalkar, V. V., Ranjan, S. and Dasgupta, N. (2017), 'Diastase induced green synthesis of bilayered reduced graphene oxide and its decoration with gold nanoparticles' *Journal of Photochemistry & Photobiology, B: Biology* **166**, 252-258.
10. Sai, K. T., Mandal, B. K., Ranjan, S. and Dasgupta, N. (2017), 'Cytotoxicity study of Piper nigrum seed mediated synthesized SnO₂ nanoparticles towards colorectal (HCT116) and lung cancer (A549) cell lines', *Journal of Photochemistry & Photobiology, B: Biology* **166**, 158-168.
11. Janardan, S., Suman, P., Ragul, G., Anjaneyulu, U., Ranjan, S., Dasgupta, N., Ramalingam, C., Sasikumar, S., Vijayakrishna, K. and Sivaramakrishna, A. (2016), 'Assessment on Antibacterial Activity of Nanosized Silica derived from Hypercoordinated Silicon(IV) Precursors', *RSC Advances* **6**, 66394-66406.
12. Ranjan, S., Dasgupta, N., Srivastava, P. and Chidambaram, R. (2016), 'A spectroscopic study on interaction between bovine serum albumin and titanium dioxide nanoparticle synthesized from microwave-assisted hybrid chemical approach', *Journal of Photochemistry & Photobiology, B: Biology* **161**, 472-481.
13. Ranjan, S., Dasgupta, N., Walia, N., Thara, C. C. and Chidambaram, R. (2016), 'Microwave blanching: an emerging trend in food engineering and its effects on Capsicum annuum L. *Journal of Food Process Engineering* **40**,

e12411.

14. Dasgupta, N., Ranjan, S., Patra, D., Srivastava, P., Kumar, A. and Ramalingam, C. (2016), 'Bovine serum albumin interacts with silver nanoparticles with a "side-on" or "end on" conformation', *Chemico Biological Interaction* **253**, 100-111.
15. Dasgupta, N., Ranjan, S., Mundra, S., Kumar, A. and Chidambaram, R. (2016), 'Fabrication of Food grade Vitamin E nanoemulsion by low energy approach: characterization and its application', *International Journal of Food Properties* **19**, 700-708.
16. Ranjan, S., Dasgupta, N., Bhavapriya, R., Venkatraman, M., Chidambaram, R., Avadhani, G. S. and Ashutosh, K. (2016), 'Thermal co-reduction approach to vary size of silver nanoparticle: its microbial and cellular toxicology', *Environmental Science and Pollution Research* **23**, 4149-4163.
17. Maddinedi, S. B., Badal, K. M., Ranjan, S. and Dasgupta, N. (2015), 'Diastase assisted green synthesis of size-controllable gold nanoparticles', *RSC Advances* **5**, 26727-26733.

Book Chapters Published from Doctoral Research

1. Nandita D, Shivendu R, Arkadyuti RC, Chidambaram R, Rishi S, Ashutosh K (2016) Nanoagriculture and water quality management. Shivendu R, Nandita D, Eric L (Eds.) Sustainable Agriculture Reviews: Nanoscience in Food and Agriculture 1. Springer International Publishing Switzerland. DOI: 10.1007/978-3-319-39303-2_1
2. Shivendu R, Nandita D, Chidambaram R (2016) Ch.7: Nanoemulsions in Food Science and Nutritions. Book: Nanotechnology in nutraceuticals: Production to consumption. Shampa S, Yashwant P (Eds.) CRC press, Boca Raton, Florida. pp: 135

3. Nandita D, Shivendu R, Chidambaram R (2016) Ch. 17: Nanonutraceuticals: Are they safe? Nanotechnology in nutraceuticals: Production to consumption. Shampa S, Yashwant P (Eds.) CRC press, Boca Raton, Florida. pp: 317
4. Sannapaneni J, Pavankumar BB, Shivendu R, Nandita D, Samuel M, Chidambaram R, Akella S*, Kari V (2015) Chapter 12: A Chemist's Perspective on Bioenergy: Opportunities and Challenges. Navanietha KR, Jong-Sung Y (Ed.) Bioenergy: Opportunities and Challenges; Apple Academic Press, Oakville, Canada. ISBN: 9781771881098.

Authored Books

1. An Introduction to Food Grade Nanoemulsions, Nandita D, Shivendu R (Authors) Springer International Publishing Singapore. ISBN: 978-981-10-6986-4. DOI: 10.1007/978-981-10-6986-4
2. Polymers in Food Industries: An Engineering Perspective, Ranjan S, Dasgupta N, Moses JA, Anandharamakrishnan C (Authors) Royal Society of Chemistry, UK (RSC). Contracted'

Edited Books

1. Environmental Nanotechnology Volume 1, Dasgupta N, Ranjan S, Lichtfouse E (Eds.) Springer International Publishing Singapore. ISBN: 978-3-319-76090-2. DOI: 10.1007/978-3-319-76090-2
2. Nanotechnology, Food Security and Water Treatment, Gothandam KM, Shivendu R, Nandita D, Chidambaram R, Eric L (Eds.) Springer International Publishing Singapore. ISBN: 978-3-319-70166-0. DOI: 10.1007/978-3-319-70166-0
3. Nanoscience in Food and Agriculture 5, Shivendu R, Nandita D, Eric L (Eds.) Springer International Publishing Switzerland. ISBN: 978-3-319-58496-6. DOI: 10.1007/978-3-319-58496-6

4. Nanoscience in Food and Agriculture 4, Shivendu R, Nandita D, Eric L (Eds.) Springer International Publishing Switzerland. ISBN: 978-3-319-53112-0. DOI: 10.1007/978-3-319-53112-0
5. Nanoscience in Food and Agriculture 3, Shivendu R, Nandita D, Eric L (Eds.) Springer International Publishing Switzerland. ISBN: 978-3-319-48008-4. DOI: 10.1007/978-3-319-48009-1
6. Nanoscience in Food and Agriculture 2, Shivendu R, Nandita D, Eric L (Eds.) Springer International Publishing Switzerland. ISBN: 978-3-319-39306-3. DOI: 10.1007/978-3-319-39306-3
7. Nanoscience in Food and Agriculture 1, Shivendu R, Nandita D, Eric L (Eds.) Springer International Publishing Switzerland. ISBN: 978-3-319-39303-2. DOI: 10.1007/978-3-319-39303-2
8. Nanotoxicology: Toxicity Evaluation, Risk Assessment and Management, Vineet K, Nandita D, Shivendu R (Eds.) CRC Press, Boca Raton, Florida, United States. ISBN:978-1-4987-9941-6 [In press]
9. Nano-food Engineering (A Volume in the Food Engineering Series) Hebbar UH, Shivendu R, Nandita D, Mishra RK (Eds.) Springer International Publishing AG, Gewerbestrasse 11, 6330 Cham, Switzerland [In Press]
10. Nano-carriers for drug delivery (A Volume in the Micro and Nanotechnologies Series), Mohapatra SM, Shivendu R, Nandita D, Mishra R, Sabu T (Eds.) Elsevier Inc. Cambridge, MA 02139, USA [In Press]
11. Characterization and biology of nanomaterials for drug delivery (A Volume in the Micro and Nanotechnologies Series), Mohapatra SM, Shivendu R, Nandita D, Mishra R, Sabu T (Eds.) Elsevier Inc. Cambridge, MA 02139, USA [In Press]
12. Applications of targeted nano-drugs (A Volume in the Micro and Nanotechnologies Series), Mohapatra SM, Shivendu R, Nandita D, Mishra R, Sabu T (Eds.) Elsevier Inc. Cambridge, MA 02139, USA [In Press]
13. Environmental Toxicity of Nanomaterials, Vineet K, Nandita D, Shivendu R (Eds.) CRC Press, Boca Raton, Florida, [In press]

List of Awards and Honours

1. Expert Committee - European Commission Horizon 2020
2. IOSRD Achievement Award 2017 - International Organization for Scientific Research and Development, Chennai, India
3. Advisor and Referee - Iran National Science Foundation (INSF), Tehran, Iran
4. VIT Biosummit Alumni Award 2017 - School of Bio Sciences and Technology, VIT University, Vellore, India
5. Invited Juror – National Startup Competition 2017 - Venture Cup, Denmark
6. Research Award 2017 - VIT University, Vellore, India
7. Special Achiever Award 2016 - VIT University, Vellore, India
8. Research Award 2016 - VIT University, Vellore, India
9. Achiever Award 2016 - VIT University, Vellore, India
10. Research Award 2015 - VIT University, Vellore, India
11. Best Poster Award - Association of Food Scientists and Technologists (India)
12. Elsevier Advisory Panel – Elsevier Inc., Netherlands
13. Research Award 2014 - VIT University, Vellore, India
14. Associate Editor - Environmental Chemistry Letters, Springer, Switzerland
15. Editorial Panel - Biotechnology & Biotechnological Equipment, Taylor & Francis, USA
16. Reviewer- In Vitro Cellular & Developmental Biology – Animal, Springer, Germany
17. Reviewer - Journal of Agricultural and Food Chemistry, American Chemical Society, USA
18. Reviewer - International Journal of Food Properties, Taylor & Francis, USA
19. Reviewer - International Journal of Nanomedicine, Dovepress, USA

Nanoparticles in Complex Matrices using the Agilent 8900 ICP-QQQ. Application note. Environmental, food, cosmetics, materials.

Introduction. However, the fate of NPs in the environment and the potential for toxic effects once absorbed into the body remain largely unknown. Many researchers have investigated different methodologies to measure TiO₂ NPs in cosmetic or food samples [1, 2, 3, 4]. TiO₂ NPs have three principal levels of structure, beginning with nanoscale crystallites. In practice, however, there are some challenges for the measurement of TiO₂ NPs using conventional single quadrupole ICP-MS (ICP-QMS). Many real samples may contain P, S, Ca, Si and C, and all these elements cause interferences that hinder the measurement of Ti. Also, the. The micrographs SEM images of TiO₂ nanoparticles were prepared at different calcination temperatures as shown in Figure 2. (Figure 2a) shows TiO₂ nanoparticles calcined at 500°C have roughly spherical spongy shape with small size nanoparticles around the range of less than 10 nm. When the temperature increases, the sizes become bigger and the agglomeration becomes significant. Further increase in temperature up to 900°C, TiO₂ nanoparticles exhibited non-uniform particles shape due to the agglomeration of initial particles with increase in crystalline size. (2008). Effect of shape and surface chemistry of TiO₂ colloidal. nanocrystals on the organic vapor absorption capacity of TiO₂/PMMA. composite. Ba-abbad, M. M., Kadhum, A. A. H., Mohamad, A. B.