Dr. K. Geetha

Assistant Professor (SS) & Head / Department of Biotechnology,

Thanjavur – 613 403, India: Mobile: +91-90039 76706

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Educational qualifications

- **Ph.D.,** Animal Science and Nanoscience, Gandhigram Rural Institute, Tamilnadu, India
- **M. Tech,** Nanotechnology**,** SASTRA University, Tamilnadu, India
- **B. V. Sc**, Madras Veterinary Colleges, TANUVAS, Tamilnadu, India

Work Experience

- Total Experience : 14 Years 11 Months
- Research Experience : 10 Years
- Teaching Experience : 14 Years 11 Months
- Clinical Experience : 6 Months

Administrative Accomplishments

- HoD/ Department of Biotechnology
- Co-Ordinator / DST Nanomission funded 2-year program -M. Tech (Nanotechnology)
- Board of Studies member in (M. Tech (Nanotech -2 Year), M. Tech Integrated Nanotechnology, B. Voc hospital system and management, B. Tech (Biotechnology) and M. Sc (Biotechnology)
- Admission - Nanotechnology Division coordinator and currently Biotechnology
- UGC coordinator Nanotechnology division
- NAAC coordinator for nanotechnology division (criteria I – VII in 2021 NAAC)
- ISO coordinator -Nanotechnology Division
- Additional Chief Superintendent of examination
- Library in charge
- Class incharge
- Mentor
- Nanotechnology Lab establishment – Nanomaterial Synthesis lab, Characterization lab, Colloids and surface engineering lab
- Consultancy
- Farm Maintenance (Piggery, Goat, cattle, Sheep and Goat, Contract farming of poultry)
- Co-Ordinator in exam Evaluation office
- Research guide

Recognition and achievement

- PhD Guidance – 01
- Masters Guidance -25
- M. Phil – 01
- B. Tech - 06
- Reviewer in Journal of Community Medicine and Health Solutions
- Best Book chapter contributor award
- Marie Curie award (Best Researcher)

- A proposal entitled “A study on sustained delivery Efficiency of NSAID by Nano fibrous Retinal adhesive intraocular pills” has got scrutinized for final presentation by DBT under the call for Nanobiotechnology , 2018
- KRITAGYA Biotech Hackathon 2022 - Cleared National round on the title of “Biodegradable intravaginal progesterone releasing sponge (Nano PRIS) using electrospun material”
- Institute innovation council faculty ambassador

Research Interest

- Animal Nutrition
- Tissue Regeneration
- Drug Delivery
- Environmental applications and
- Nanomaterials synthesis and analysis

Technical Competence

- **Nanomaterial Synthesis**
    - Sol gel method
    - Electrospinning
    - Dip Coating
    - Film casting
    - DC Sputtering
    - Electrochemical deposition and Spray pyrolysis
    - Biochemical and microbiological experiments
    - Animal Handling
- **Analytical techniques**
    - Surface morphology analysis by Scanning Electron Microscope
    - Molecular fingerprint analysis by Raman Spectroscopy and FTIR spectroscopy
    - Optical properties and Quantitative analysis using UV- Spectrophotometric analysis
    - Diagnosis and treatment for animal diseases

Subjects Handled

- Microbiology
- Cell Biology
- Molecular Biology
- Pharmaceutical Biotechnology
- Immunology
- Animal Biotechnology
- Bioinstrumentation
- Research Methodology
- Nanomaterials synthesis techniques
- Nanomaterial Analytical Techniques
- Emerging trends in Biomedical applications
- Nanocomposites and its application
- Carbon Nanotube and its applications
- Colloids and surface engineering
- Introduction to nanotechnology and Nanomaterials and its applications

Scholar citations

- **Sep/2020: 139 citations** as on 18th Sep 2022 with **h-index of 8 & i10 index 7**
- https://scholar.google.co.in/citations?hl=en&user=L3wgvZkAAAAJ
- **https://orcid.org/0000-0002-5690- 7985**

Publications

1. Sustained delivery of Non-Steroidal Anti-Inflammatory drug for Wound dressing, A. Farjana Begum, K. Geetha and D. Kumar, International Journal of PharmTech Research. 6 (7), 1999-2007, 2014.

2. Electrospun bioceramic composite scaffold for bone regeneration, Geetha Kathiresan and Uma Maheshwari Krishnan, Journal of Chemical and Pharmaceutical Research, 2015, 7(11): 574-580

3. Synthesis and characterization of nano selenium as feed supplement, N. Arulnathan, R. Karunakaran, V. Balakrishanan, M. Chellapandian and K. Geetha, International Journal of Science, Environment and Technology, 5(4): 2296-2300, 2016.

4. In vitro Cytotoxicity Assessment of Nano Selenium in Mice for its Biocompatibility as Feed Supplement. *N*. Arulnathan, R.Karunakaran, V. Balakrishanan, M. Chellapandian, K. Geetha and A. Sabareeswaran. Indian Vet. J., 94 (03) : 28 – 30, 2017

5. Advanced composites - organic nanoscaffolds for wound healing, S.KAnimozhi, R.Suganthy, M.Monika, S. Harini and K. Geetha, Indian J. Sci .Res. 14 (1): 241-243, 2017.

6. A Review on Dye Reduction Mechanism using Nano Absorbents in Waste Water, V. Kavithayeni, K.Geetha and S. Akash Prabhu, International Journal of Recent Technology and Engineering ,7 (6S2),2019.

7. Synthesis of Nano Copper Shell for Conductive Ink in Wearable Electronics, Akash Prabhu S, Geetha Kathiresan, Suganthy R , International Journal of Innovative Technology and Exploring Engineering. 8(10), 2019.

8. Nano Titanium Dioxide -An Effective Photocatalyst for Emerging Applications. S Ragavi PriyadharshaniRaja, Geetha Kathiresan, R. Ilavarasi, , International Journal of Innovative Technology and Exploring Engineering. 8(10), 2019.

9. Nano zinc oxide – An alternate zinc supplement for livestock, K. Geetha, M. Chellapandian, N. Arulnathan and A. RamanathanVeterinary World, 13(1): 121-126, 2020.

10. Wound healing potential of Indian traditional tree– Ficus Religiosa. Suganthy R, Karunya sri PA, Sivashangari. D and Geetha.K, International Journal of Future Generation Communication and Networking , 13(1), 1221-1, 2020

11. Novel nanofibrous honey as a wound dressing material– A Review, S. Kanimozhi, A. Aswini, P. Yogapriya, Geetha. K, International Journal of Future Generation Communication and Networking, 13(1), 1230-1238,2020.

12. Organic nanocomposite Band-Aid for chronic wound healing: a novel honey-based nanofibrous scaffoldKanimozhi, S., Kathiresan, G., Kathalingam, A. et al. *Appl Nanosci* **10**, 1639–1652 (2020)

Raman Fingerprints in Detection of Breast Cancer, Geen, Geetha Kathiresan, Durairaj Kumar Sreenath Subrahmanyam, Kumaran Shanmugam. J of Biosens Biomark Diagn 1(1): 1-11

14. Graphene quantum dots synthesis and energy application: a review, Prabhu, S.A., Kavithayeni, V., Suganthy, R. et al, Carbon Lett. 31, 1–12 (2021).

15. Lung function of primary cooks using LPG or biomass and the effect of particulate matter on airway epithelial barrier integrity, Emma M. Stapleton, Abhilash Kizhakke Puliyakote, Nervana Metwali, Matthew Jeronimo, Ian M. Thornell, Robert B. Manges, Monalisa Bilas, Mohamed Ali Kamal Batcha, Mangaleswari Seeniappan Kumaravel, Kumar Durairaj, Kesavan Karuppusamy, Geetha Kathiresan, Sirajunnisa Abdul Rahim, Kumaran Shanmugam, Peter S. Thorne, Thomas M. Peters, Eric A. Hoffman,Alejandro P. Comellas, Environmental Research, **189, 2020,**

16. A Simple Route for the Synthesis of Cobalt Phosphate Nanoparticles for Electrocatalytic Water Oxidation in Alkaline Medium, Selvasundarasekar Sam, Arumugam Rathishkumar, Kathiresan Geetha,and Subrata Kundu, 34(10): 12891–12899,2020.

17. Image registration based QCT characterization of the lungs of biomass cooks, A. S. Kizhakke Puliyakote, E. M. Stapleton, M. Bilas, N. Metwali, M. Jeronimo, I.M. Thornell, R. B. Manges, S. Suresh K. Durairaj, K. Karuppusamy, K. Geetha, A. Sirajunnisa, K. Shanmugam, P. S. Thorne, T. M. Peters,A. P. Comellas, Eric A. Hoffman, European Respiratory Journal 2020 56: 1306

18. Electrospinning as a tool in fabricating hydrated porous cobalt phosphate fibrous network as high rate OER electrocatalysts in alkaline and neutral media, Selvasundarasekar Sam Sankar, Arumugam Rathishkumar, Kathiresan Geetha, Subrata Kundu,International Journal of Hydrogen Energy, 46 (17): 2021,10366-10376, 2020.

19. Photocatalytic degradation efficiency of ZnO, GO and PVA nanoadsorbents for crystal violet, methylene blue and trypan blue, Geetha Kathiresan, Kavithayeni Vijayakumar, Akash Prabhu Sundarrajan, Hyun- Seok Kim, Kathalingam Adaikalam, Optik, 238, 166671, 2021.

20. Design and fabrication of wi-fi antenna using nano copper, S.Viijayapradeep , I.Suresh, A. Kathalingamand K.Geetha, GIS SCIENCE JOURNAL, 8(5) ,442 – 448 , 2021.

21. Effect of Nano Zinc Supplementation on Production Performance, Immune Response and Carcass Characteristics in Japanese Quail Broiler, N. Arulnathan, M. Chellapandian, K. Geetha, D. Thirumeignanam, M.P. Vijayakumar, Journal of Dairying, Foods & Home Sciences, 2021.

22. Electrospun nanofibrous ZnO/PVA/PVP composite films for efficient antimicrobial face masks, K. Geetha, D. Sivasangari, Hyun-Seok Kim, G. Murugadoss, A. Kathalingam, Ceramics International, 48 (19), B, 29197-29204, 2022.

23. Imaging-based assessment of lung function in a population cooking indoors with biomass fuel: a pilot study, Abhilash S Kizhakke Puliyakote , Emma M Stapleton , Kumar Durairaj , Kesavan Karuppusamy , Geetha Kathiresan , Kumaran Shanmugam , Sirajunnisa Abdul Rahim , Suresh Navaneethakrishnan , Monalisa Bilas , Rui Huang , Nervana Metwali , Matthew Jeronimo , Kung-Sik Chan , Junfeng Guo , Prashant Nagpal , Thomas M Peters , Peter S Thorne , Alejandro P Comellas , Eric A Hoffman 2023 Mar 1;134(3):710-721. doi: 10.1152/japplphysiol.00286.2022. Epub 2023 Feb 9.

K. Ranjithkumar, K. Geetha, V. Prabu, S. M. Senthilkumar & R. Sekar (2023) Structural and morphological characteristics of nanocrystalline palladium deposits prepared from ammonia complex by electrodeposition technique, Transactions of the IMF, DOI: 10.1080/00202967.2023.2186600

25. N. Arulnathan, M. Chellapandian, K. Geetha, D. Thirumeignanam, M.P. Vijayakumar (2023) Effect of Nano Zinc Supplementation on Production , Performance, Immune Response and Carcass Characteristics in Japanese Quail Broiler, Asian Journal of Dairy and Food Research, Volume 42 Issue 3: 332-336 (September 2023).

Patent filed and published

1. A process of preparation of nanomineral supplement oral dispersible film For augmenting productivity incattle and product thereof, ,Ref: No. No.202241005194 A
   Journal Link: https://search.ipindia.gov.in/IPOJournal/Journal/ViewJournal Journal No.: **06/2022** (downloadPart - 1 and refer page no. 142)

Consultancy service

- 2010— 2020 : Generated INR 12, 00, 000/- through my group expert services for SEM Analysis of various research samples across Tamil Nadu, India.
- 2023 : Generated INR 9900 /- through SEM analysis and student project

Chapters in Books – International

1. Carbon Nanotubes in Regenerative Medicine. Krishnaveni, R., Roobadoss, M.N., Kumaran, S., Kumar, A. A., Geetha, K. (2022). In: Abraham, J., Thomas, S., Kalarikkal, N. (eds) Handbook of Carbon Nanotubes. Springer,Cham. https://doi.org/10.1007/978-3-319-70614-6_41-1

2. Biobased (nanochitin, nanochitosan) polymer nanocomposite membranes and their pervaporation applications, Geetha Kathiresan, Naveen Rooba Doss M., Editor(s): Sabu Thomas, Soney C. George, Thomasukutty Jose,In Micro and Nano Technologies,Polymer Nanocomposite Membranes for Pervaporation,Elsevier, 2020, Pages 35-79, ISBN 9780128167854, https://doi.org/10.1016/B978-0-12-816785-4.00003-(https://www.sciencedirect.com/science/article/pii/B9780128167854000033)

3. Steady and Transient Flow CFD Simulations in an Aorta Model of Normal and Aortic Aneurysm Subjects, R. Vinoth, D. Kumar, Raviraja Adhikari, S. Vijayapradeep, K. Geetha,R. Ilavarasi, and Saravanakumar Mahalingam, Springer International Publishing AG, part of Springer Nature 2019M. Jiang et al. (eds.), The Proceedings of the International Conference on Sensingand Imaging, Lecture Notes in Electrical Engineering 506,https://doi.org/10.1007/978-3-319-91659-0_329.

Book Published

1. Atomistix Tool Kit - A Virtual Nano Lab, K. Geetha & D. Kumar, ISBN:978-620-5-51777-2,2023.

2. Emerging Tools for Biology and Medicine, K. Geetha, ISBN:978-620-4-97979-3,2022.

3. Virology, K. Geetha, ISBN:978-620-2-55424-4, 2021.

Book Chapters Published

1. Current and future prospects of nanotechnology in poultry health and production, IX Annual Convention and National Seminar of Society for Veterinary Science & Biotechnology on "Recent Biotechnological Advances in Health, Management Practices to Augment Productivity of Livestock and Poultry" 22, 23, & 24 September, 2022, ISBN:9789357371445

2. இறைச்சிக்கான ஜப்பானிய காடை தீவனத்தில் மீநுண் துத்தநாக ஆக்சைடினை தீவனச் சேர்க்கை பொருளாக சேர்க்கும் பொழுது அவற்றின் உற்பத்தி திறனில் ஏற்படும் மாறுபாடுகள் ஓர் ஆய்வு, ந அருள்நாதன், ம. செல்ல பாண்டியன், க கீதா மற்றும் து திருமெய்ஞானம்

3. இறைச்சி கோழிகளின் உற்பத்தி திறனில் தீவனத்தில் மீநுண் துத்தநாக ஆக்சைடினை சேர்ப்பதனால் ஏற்படும் மாறுபாடுகள் ஓர் ஆய்வு, க கீதா , அ ராமநாதன், ந அருள்நாதன், ம. செல்ல பாண்டியன்.

4. இறைச்சி கோழிகளின் தீவனத்தில் துத்தநாக ஆக்சைடினை மீநுண்துகள்களாக சேர்ப்பதற்காக அதன் உற்பத்தி மற்றும் பண்புகளை ஆராய்தல் முறை, க கீதா , அ ராமநாதன், ந அருள்நாதன், ம. செல்ல பாண்டியன்

5. இறைச்சி கோழிகளின் தீவனத்தில் மீநுண்துகள் துத்தநாக ஆக்சைடினை உபபொருளாக சேர்ப்பதற்காக அவற்றால் உயிர் செல்களில் ஏற்படும் பாதிப்பு மற்றும் நச்சுத்தன்மையை ஆய்வகத்தில் அறியும் ஆய்வு, க கீதா , அ ராமநாதன், ந அருள்நாதன், ம. செல்ல பாண்டியன்

6. வெவ்வேறு துத்தநாக நுண்ணூட்ட சத்துக்களில் இருந்து உடல் உக்கிரகிக்கும் துத்தநாகத்தின் அளவு மூலக்கூறு ஆற்றல் குறைப்பாய்வின் மூலம் கண்டறிதல், க கீதா , அ ராமநாதன், ந அருள்நாதன், ம. செல்ல பாண்டியன்

7. இறைச்சி கோழிகளின் உற்பத்தி திறனில் தீவனத்தில் மீநுண் துத்தநாக ஆக்சைடினை சேர்ப்பதனால் ஏற்படும் மாறுபாடுகள் ஓர் ஆய்வு, க கீதா , அ ராமநாதன், ந அருள்நாதன், ம. செல்ல பாண்டியன்

8. மருந்து எதிர்ப்பு நுண்ணுயிர் தொற்றுதலினால் ஏற்படும் நோய்களின் சிகிச்சைக்கு நுண்ணுயிர் எதிர்ப்பு மருந்தாக மீநுண் துகள்கள், க கீதா , ந அருள்நாதன்

9. Bioavailability of zinc and tissue zinc concentration in broiler with response to zinc resources, 4th National Agricultural Scientific Tamil Conference, tamil nadu dr. J. Jayalalithaa fisheries university, Nagapattinam
10. Zinc and meat quality of broilers: a review, 4th National Agricultural Scientific Tamil Conference, tamil nadu dr. J. Jayalalithaa fisheries university, Nagapattinam
11. Finding the energy minimization of three different zinc resources by simulation study for to identify the amount of zinc availability for the application of broiler zinc supplementation, 4th National Agricultural Scientific Tamil Conference, tamilnadu dr. J. Jayalalithaa fisheries university, Nagapattinam
12. Disassociation rate analysis of zinc from three different zinc resources using polydispersity index for the application of broiler zinc supplementation, 4th National Agricultural Scientific Tamil Conference, tamil nadu dr. J. Jayalalithaa fisheries university, Nagapattinam
13. Relative study of biocompatibility of three different zinc resources ZnO, NZnO and MNZnO in in-vitro for the application of broiler zinc supplementation, 4th National Agricultural Scientific Tamil Conference, tamil nadu dr. J. Jayalalithaa fisheries university, Nagapattinam

Popular Articles

- Ilabakaramana Iraichikkana Aadu Valarppu Thozhil, K. Geetha, N. Arulnathan and M.Muthulakshmi, K.Geetha, N. Arulnathan and M.Muthulakshmi.

Research Funding/Grants Received

1.

Title:	Correlation of Pulmonary Structural and Functional Alterations in a population exposed to Indoor Cooking with Solid Biofuel: A Pilot Study
Role:	Basic Scientist-Member & Secretary for carrying human research subject- Institutional Ethical Committee Meeting in India
Grant:	University of Iowa will give grant to PMU to cover the cost of CT scan of 30 subjects and analysis of blood and air.
Funding agency:	University of Iowa
Period:	(21/08/2015 — 21/08/2016)
Project website:	http://www.i-clic.org/projects.html

2.

Title:	Activated nano carbon reinforced in textile for indoor air purification
Scheme:	Student's Research Project
Role:	Supervisor
Grant:	Rs. 7500/- Funding agency: Tamil Nadu State Council for Science and Technology(TNSCST)
Period:	6 Months (Nov, 2019 – April, 2020)
Project Number:	VS-002
Reference:	https://www.tanscst.nic.in/pdf/SPSRS1920.pdf

3.

Title:	Fabrication and analysis of nano copper coated Wi-Fi antenna
Scheme:	Student's Research Project
Role:	Supervisor
Grant:	Rs. 7500/- Funding agency: Tamil Nadu State Council for Science and Technology(TNSCST)
Period:	6 Months (Nov, 2019 – April, 2020)
Project Number:	VS-002
Reference:	https://www.tanscst.nic.in/pdf/SPSRS1920.pdf

4.

Title:	Nanocomposite organic band-aid for chronic wound healing
Scheme:	Student's Research Project
Role:	Supervisor
Grant:	Rs. 7500/- Funding agency: Tamil Nadu State Council for Science and Technology(TNSCST)
Period:	6 Months (Nov, 2019 – April, 2020)
Project Number:	VS-002
Reference:	https://www.tanscst.nic.in/pdf/SPSRS1920.pdf

5.

Title:	Electrospun organic nanocomposite Band-Aid for wound healing
Scheme:	PMIST Seed Money 2020
Role:	Pricipal Investigator
Grant:	Rs. 50,000/-
Period:	1 Years

Project Number: Lr. No :0296/ Registrar / 2019-2020/ Date 15.11.2019

6. **Title:** Synthesis and Characterization of lysine capped nano zinc oxide for the application of Japanese quail zinc supplementation

Scheme: PMIST Seed Money 2023
Role: Principal Investigator
Grant: Rs. 1,00,000/-
Period: 2 Years (March 2023 to March 2025)
Project Number: Lr. No :37/ Registrar / 2022-2023 / Date 28.03.2023

Professional Body Membership

- Tamil Nādu Veterinary Council, Reg. No: 3538
- Animal Nutrition Society of India, Sr. No. in Life Member Register: 664 dt. 02.05.2022.
- Laboratory Animal Scientists Association, Membership number .865 dt 17.10.2022
- Society for veterinary science and Biotechnology, LM*335 dt 28.07.2022

My contributions to the metrics in NAAC

Criterion No.	Parameter	My contribution
3.1.1	Procurement of major equipment	• Scanning Electron Microscope and • Raman Spectroscope – DST Nanomission
	Procurement of major equipment	• Electrospinning – Assembled setup – PMIST management funding • Ball Milling • Wet Chemical synthesis setup • UV-Visible spectroscopy • PCR • Lyophilizer
3.2.2	Research funding received from Government	3 projects – TNSCST – (Rs.22500)
1	Board of studies	**BoS member in** • M. Tech (Nanotechnology) • M. Tech Integrated Nanotechnology • B. Voc (Hospital System) **BoS Chairperson in** • B. Tech (Biotechnology) • B. Tech Biotechnology in specialization with computer science and Biology • M. Sc (Biotechnology) • M. Tech (Nanotechnology)
3.3.3 & 3.1.6	Awards and Recognition	1. Best book chapter contribution award 2. Marie Curie award (Best Researcher) 3. Extra Mile award - 12
3.1.2	Seed money for research	3 seed money Received from PMIST
3.6.1	Patent	1 Indian patent
3.5.2	Consultancy	Rs.12,00,000/- from Scanning Electron microscope
3	Proposal Submitted	25 Proposal submitted

2	ICT Tools	E-Content prepared
2	Remedial Class	Conducted as per the attendance percentage
	Laboratory extension	Nanomaterial synthesis and characterization
3.4.8 & 3.4.9	Research Publications	30 publications in Scopus/Web of Science/SCIE indexed journals
3.7.1	Research collaboration	Collaboration with CSIR CECRI, Veterinary college and research institute, Tirunelveli, Dongguk University , Seoul, South Korea and University of Iowa.
5.1.3 &	Number of programs organized	27
6.	Number of FDP attended with funding	04
	Number of FDP attended	08
	Extension activity	06