

Dr. Sumathra M, Assistant Professor

Dr. Sumathra M, Assistant Professor		
Educational Qualification	PhD, Biochemistry	
Experience	Teaching	12 years
	Research	14 Years
Area of Interest	Enzymology, Protein Biochemistry, Protein purification and characterization.	
Date of joining RVCE	07-10-2013	
Email ID	sumathram@rvce.edu.in	



Project Guided:

Number of UG projects guided: 10

Publications:

National conference: 12

National Journal: 02

International Journal: 14

International Conference: 13

National Conference:

1. Participated in the National Seminar on New Trends in Bio-Technology & 14th Conference of Society of Cytologist and Geneticists, organized by Department of Biotechnology, BIET, Davanagere, from 6 – 8 March 2019. Paper presentation by Shruthi Singh, Pallavi Surana, Priyadarshini V., **Sumathra M.** and A.H. Manjunatha Reddy on “Interaction between variants of Galt in Galactosemia: An in silico approach”
2. Participated in the National Seminar on New Trends in Bio-Technology & 14th Conference of Society of Cytologist and Geneticists, organized by Department of Biotechnology, BIET, Davanagere, from 6 – 8 March 2019. Paper presentation by Abhidith Shetty N., Harshit Beria, Prateek Sharma, Shreyasi Natraj, **Sumathra Manokaran** and A.H. Manjunatha Reddy on Prevalence of hypertension and its associated risk factors using survey data.

3. Participated in the National Seminar on New Trends in Bio-Technology & 14th Conference of Society of Cytologist and Geneticists, organized by Department of Biotechnology, BIET, Davanagere, from 6 – 8 March 2019. Paper presentation by Pallavi Surana, Shruti Singh, Anismita Saha, Tanisha Ujjain, **Sumathra Manokaran** and A.H. Manjunatha Reddy.
4. Participated and presented a paper entitled “Role of enzymes in Inflammatory diseases” in the National conference on environment, education, humanities, commerce, science & technology (EEHCST 2019). Organized by Deccan Environmental Research Organization (DERO), Vijayapur, Karnataka and Society for Environment and Sustainable Development (SESD), New Delhi on 28th September 2019.
5. Participated and presented a paper entitled “Role of enzymes in Inflammatory diseases” in the National conference on environment, education, humanities, commerce, science & technology (EEHCST 2019). Organized by Deccan Environmental Research Organization (DERO), Vijayapur, Karnataka and Society for Environment and Sustainable Development (SESD), New Delhi on 28th September 2019.
6. Conference Paper Abstract: Smitha K. **Sumathra M** and A.H. Manjunatha Reddy. 2019. Extraction of lutein from microalgae. National Conference on Phytochemical and microbial bioactive compounds-Role in agriculture and human welfare (PMBC-2019), organized by Bangalore University, Bangalore from 3-4 October 2019.
7. Participated in the National Conference on Biodiversity Conservation – Recent Developments and Future Strategies (BCRDFS-2018). Organized by Department of P. G. Studies and Research in Wildlife and Management, Kuvempu University, from 16 – 17 Nov 2018. Conference Abstract by Abhidith Shetty, N., Shreyasvi, N., Prateek Sharma., Harshit Beria., Santosh Kumar, M.S., **Sumathra, M.** and A.H. Manjunatha Reddy. 2018. Working model of puri pod for the purification of waste water.
8. Participated the National Conference on Biodiversity Conservation – Recent Developments and Future Strategies (BCRDFS-2018). Organized by Department of P. G. Studies and Research in Wildlife and Management, Kuvempu University, from 16 – 17 Nov 2018. Conference Abstract: Shruti Singh., Pallavi Surana., **M. Sumathra** and A.H. Manjunatha Reddy. 2018. Computation of the Carbon content in the soils.
9. Participated in the National Conference on Biodiversity Conservation – Recent Developments and Future Strategies (BCRDFS-2018). Janani, K., Aishwarya, R.Vittal, **M. Sumathra** and A.H. Manjunatha Reddy. 2018. Bioethanol production from plant-based waste biomass by yeast fermentation.
10. Conference abstract on “Sustainable production of algal biodiesel using Chlorella pyrenoidosa” in the National Conference on Emerging Trends in Biofuel and their impact on Global Economy (ETPBIGE) 2018, organized by Christ (Deemed to be University), Bangalore from 27-28 July 2018
11. Manokaran, S., (2002) Role of cAMP as a second messenger, Society of Biological chemists, Annamalai University, India.
12. Uchit Bhaskar, Smriti Pimplikar, Alisha, Smitha K., **Sumathra Manokaran** and A.H. Manjunatha Reddy. 2018. Sustainable production of algal biodiesel using Chlorella pyrenoidosa. Mapana Journal of Sciences, 17(4): 37-51.

National Journal:

1. WETLAND INVENTORY, ASSESSMENT AND MONITORING, INDIAN JOURNAL OF RESEARCH | Volume - 11 | Issue - 04 |April - 2022 | PRINT ISSN No. 2250 - 1991 | DOI : 10.36106/paripex, Nalina Narasimhaswamy, Nalina Dasappa, K.C. Rohit, B.E. Rangaswamy, Divakara SG, Sumathra Manokaran, A.H. Manjunatha Reddy.

2. Anjali Shenoy, Shree Padma M, Bhargav D Sanketi., (2016) Immobilization of Carbonic Anhydrase: A Review. *Research & Reviews: A Journal of Biotechnology (RRJoBT)* 6 (3), 10-18.

International Journal:

1. Surana Pallavi, Singh Shruti, Saha Anismita, Ujjain Tanisha, Manokaran Sumathra and **Manjunatha Reddy A.H.** 2020. In silico study of the therapeutic role of natural compounds in influenza A. *Research Journal of Biotechnology*. 15(6): 135 – 145. (Q4)
2. Aishwarya Vittal, Srikanth B S, **Sumathra Manokaran**, A.H. Manjunatha Reddy. 2019. Extraction of petrichor and essential oils for the production of Novelty fragrance products. *J. Pharma Sci. & Res.* 11(6): 2168-2173. (Q3)
3. Pratheek Sharma, Harshit Beria, Praveen Kumar Gupta, **Sumathra Manokaran**, A.H. Manjunatha Reddy. 2019. Prevalence of hypertension and its associated risk factors. *J. Pharma Sci. & Res.* 11(6): 2161-2167. (Q3)
4. Veerabhadrapa Kubsad Sukanya, Prashantha Nagaraja, **Sumathra Manokaran**, Aall Hanumanthareddy Manjunatha Reddy, Pallavi Surana. 2018. Microarray Meta Analysis of BRCA1 Mutated Genes Involved in Breast Cancer. *Open Access Library Journal*. 5: 1-14. DOI: 10.4236/oalib.1105000.
5. Pallavi Surana, Shruti Singh, **Sumathra Manokaran** and AH Manjunatha Reddy. 2018. The interactions between variants of GALT in Galactosemia: In-silico Approach. *International Journal of Fundamental & Applied Sciences*. 7(3): 14-18.
6. Manokaran, S., Bortlund, J., Kooren, J., Banerjee, J., Mallik, S., and Srivastava, D.K. (2010) Stabilization of anionic and neutral forms of a fluorphoric ligand at the active site of human carbonic anhydrase I. *Biochim Biophys Acta*. 1804, 1965-1973.
7. Manokaran, S., Zhang, X., Chen, W., and Srivastava, D.K. (2010) Differential modulation of the active Site environment of human carbonic anhydrase XII by cationic quantum dots and polylysine. *Biochim Biophys Acta*. 1804, 1376-1384.
8. Manokaran, S., Berg, A., Zhang, X., Chen, W., and Srivastava, D.K. (2008) Modulation of ligand binding affinity of tumorigenic carbonic anhydrase XII upon interaction with cationic CdTe quantum dots. *Journal of Biomedical Nanotechnology*. 4, 491-498.
9. Berg, A.K., Manokaran, S., Eiler, D., Kooren, J., Mallik, S., and Srivastava, D.K. (2008) Energetic rationale for an unexpected and abrupt reversal of guanidinium chloride-induced unfolding of peptide deformylase. *Protein Sci.* 17, 11-15.
10. Elegbede, A. I., Haldar, M. K., Manokaran, S., Kooren, J., Roy, B., Mallik, S., and Srivastava, D.K. (2007) A Strategy of designing multi-prong enzyme inhibitors by incorporating selective ligands to the liposomal surface. *Chem. Comm.* 32, 3377-3379.
11. Elegbede, A. I., Haldar, M. K., Manokaran, S., Mallik, S., and Srivastava, D. K. (2007) Recognition of isozymes via lanthanide ion incorporated polymerized liposomes. *Chem. Comm.* 43, 4495-4497.
12. Banerjee, J., Haldar, M. K., Manokaran, S., Mallik, S., and Srivastava, D. K. (2007) New Fluorescent probes for carbonic anhydrases. *Chem. Comm.* 26, 2723-2725.
13. Srivastava, D. K., Jude, K. M., Banerjee, A. L., Haldar, M., Manokaran, S., Kooren, J., Mallik, S., Christianson, D. W. (2007) Structural analysis of charge discrimination in the binding of inhibitors to human carbonic anhydrases I and II. *J. Am. Chem. Soc.* 129, 5528-37.
14. Jude, K.M., Banerjee, A. L., Haldar, M. K., Manokaran, S., Roy, B. C.; Mallik, S., Srivastava, D. K., Christianson, D. W. (2006) Ultrahigh resolution crystal structure of human carbonic anhydrase I and II complexed with “two-prong” inhibitors reveal the structural basis for potent inhibition. *J. Am. Chem. Soc.* 128, 3011-3018.

International Conference:

1. Edible Packaging– Food For Thought And Food For The Future. Arpita Guha Neogi, Aajnaa Upadhyaya, Dr. Sumathra M and Dr. Manjunatha Reddy, ECS Transactions, 107 (1) 13757-13771 (2022)
2. Nutrigenomics In Lifestyle Disorders: A Review. Ashly Binoy, Dhrithi Bhat, Jahnavi G Bhat, Sarvesha Babu M, Manjunatha Reddy A H, and Sumathra Manokaran
3. A Paradigm Shift in Oncology and its Treatment. Prutha Vijaykumar, BE Rangaswamy, Sumathra Manokaran and AH Manjunatha Reddy, ECS Transactions, 107 (1) 1183-1190 (2022)
4. Biological Synthesis and Characterization of Silver Nanoparticles by *Orthosiphon rubicundus*. Nalina Narasimhaswamy, K.C. Rohit, B.E. Rangaswamy, SG Divakara, Sumathra Manokaran and A.H. Manjunatha Reddy, ECS Transactions, 107 (1) 16843-16849 (2022)
5. A comprehensive update on emerging infectious zoonosis and applications of zoonotic disease modeling – A Review. Krithika S., Sumathra Manokaran and A.H. Manjunatha Reddy. ECS Transactions, 107 (1) 1649-1662 (2022).
6. Developing Grow-Light Spectrum Optimization Algorithm for Plant Models - Case Study of *Spinacia oleracea*. Sumanth Vasista, Sharath Vasista, Taher Abbasi, Sumathra Manokaran and A.H. Manjunatha Reddy, ECS Transactions, 107 (1) 1211-1218 (2022)
7. Application of MLOps in Prediction of Lifestyle Diseases, KN Subramanya, AH Manjunatha Reddy, Brahmanand D, and Sandesh S Kammath, Sumathra Manokaran and BE Rangaswamy, ECS Transactions, 107 (1) 1191-1198 (2022)
8. Participated in the International Conference on Materials For Environment, Sustainable Society And Global Empowerment – 2019 (MESSAGE - 2019), at Department of Nanotechnology, Visvesvaraya Technological University, Center for Postgraduate Studies, Bengaluru Region, Muddenahalli, Chikkaballapur, from 19-20, December, 2019. Poster Presentation by Nalina D., Nalina N., Rohit, K.C., **Sumathra Manokaran** and A.H. Manjunatha Reddy. 2019. Characterization of phyto-compounds produced from *Gymnema sylvestre* R.Br through adventitious root culture.
9. Participated in the International Conference on Materials For Environment, Sustainable Society And Global Empowerment – 2019 (MESSAGE - 2019), at Department of Nanotechnology, Visvesvaraya Technological University, Center for Postgraduate Studies, Bengaluru Region, Muddenahalli, Chikkaballapur, from 19-20, December, 2019. Poster presentation by Nalina N., Nalina D., Rohit, K.C., **Sumathra Manokaran** and A.H. Manjunatha Reddy. 2019. Biosynthesis and characterization of Silver nanoparticles (AgNPs) from the phyto-extracts of *Lamiaceae* species for their biological activity study.
10. Participated in the International Conference on Materials For Environment, Sustainable Society And Global Empowerment – 2019 (MESSAGE - 2019), at Department of Nanotechnology, Visvesvaraya Technological University, Center for Postgraduate Studies, Bengaluru Region, Muddenahalli, Chikkaballapur, from 19-20, December, 2019. Poster presentation by Smita Kavadikeri, **Sumathra Manokaran** and A.H. Manjunatha Reddy. 2019. Phycoremediation and biodiesel production using diatom.
11. Berg, A., and Manokaran, S., and (2007) Mechanisms of the structural stability and metal-dissociation properties of the peptide deformylase from *E.coli*, 2007 ACS National Meeting, Neworelans,LA, USA.
12. Elegbede, A., Manokaran, S., Srivastava, D.K. (2007) Discrimination of carbonic anhydrase isozymes by excited-state lifetimes of polymerized liposome incorporated lanthanide ions, ACS National Meeting and Exposition, Boston, MA, USA.

13. Elegbede, A., Manokaran, S., Srivastava, D.K. (2006) Liposome based multiprong enzyme inhibitors, ACS National Meeting, Boston, MA, USA.

FDP/Workshops/ Seminars/ Symposium attended:

1. Attended and completed With Excellent Grades a three months workshop Conducted By Experts From Indo Universal Collaboration For Engineering Education (Iucee), on The Engineering Ethics Course” Nov 2021-Jan 2022
2. Attended a One week FDP on Biofuels- Recent Trends and future prospects from 30th Aug- 3rd September organized by Sribuddha college of engineering, Alappuzha, Kerala.
3. Attended an AICTE organized one week short term training program on Startup driven Bioinnovation and IoT for sustainable agritech from 20th Dec-27th Dec, 2022
4. Completed the AICTE ATAL FDP on OB curriculum and examination reforms from 25th October-30th October, 2021
5. Attended an AICTE sponsored one week workshop on “Towards holistic development” based on NEP from 15-19 June 2021

Interaction with outside world:

1. Collaborated with Sri Sri Ravishankar Advanced Center for Research for R & D activities, an MoU has been executed. Initiated research on Garbage Enzymes with AOL. Sri Sri Ravishankar Guruji has mentioned about MoU with RVCE during World Environmental Day- 2018 celebration at UNEP, broadcasted worldwide.
2. Collaborated with Bioneeeds India Pvt Ltd for R & D activities, internship, placement etc - and an MoU has been executed
3. Collaborated with Quantumzymes for R & D activities, internship, placement etc and an MoU has been executed
4. Collaborated with Sal Biosciences for consultancy, R & D activities, internship, placement etc and an MoU has been executed
5. Collaborated with Vowels for consultancy, R & D activities, internship, placement etc and an MoU has been executed
6. Invited talk on “Role of Enzymes in Health and Diseases” in the UGC sponsored one day National Seminar on “Modern Trends in Genetics, Molecular Biology” held at the Government First Grade College, Davanagere.
7. Chaired a session in an AICTE Sponsored National Conference on “Emerging multidisciplinary trends in biotechnology engineering: A future perspective”, Organized by Acharya Institute of Technology, Bengaluru from 23 – 24th Aug 2019.
8. Delivered a special lecture on solid waste management for rural development on April 11, 2022 in the department of PG studies and Research in Environmental science, Gulbarga University (attachment 7.1 a)
9. Chaired a session Annual National Conference “JNANA CHILUME-2022” scheduled on 01st JUNE, 2022 at JAIN (Deemed-to-be University), Global Campus, Jakkasandra Post, Kanakapura Taluk, Ramanagara District (attachment 7.1 b)

Books Chapters:

1. Human Machine Interaction and IoT applications for a smarter world -Smart Applications of IoT in healthcare, Praveen Kumar Gupta, Shweta Sudam Kallapur, Anusha Mysore Keerthi, Soujanya Ramapriya, A. H. Manjunatha Reddy, and Sumathra Manokaran, published by CRC Press, Taylor & Francis, 2022 (accepted)

2. Studies on Diatom Ecology at Kengeri Lake Harini P. Aiyer¹ , Smitha Kavadikeri¹ , Sumathra Manokaran¹ and A. H. Manjunatha Reddy^{1*} DOI: 10.9734/bpi/nvbs/v5/5183F Print ISBN: 978-93-5547-220-5, eBook ISBN: 978-93-5547-221-2

Funded Projects:

Nanoparticle based immobilization of Bovine Carbonic Anhydrase (BCA) on polyurethane foam for environmental CO₂ sequestration, VGST, Govt of Karnataka, 5.00 lakhs.

Consultancy Projects:

1. Total Phenolic compounds analysis and plant growth analysis, Sal Agro Pvt. Ltd. Bangalore.

Awards:

1. 2008 - 2010 : NSF-EPSCoR Fellowship (\$ 40, 000) for Ph. D. in NDSU, Fargo, ND, USA.
2. 2002: Thiruvarur Ramaswamy Chettiar Gold medal for the first rank in M.Sc Biochemistry
3. 2002 : Prof.K.Ganapathy Gold medal for the Best outgoing student in M.Sc Biochemistry
4. 2002 Prof. V. Balaiah M.Sc Chemistry Gold medal for the first rank in M.Sc Biochemistry.