




# Bharathiar University

State University | "A++" Grade by NAAC | 46<sup>th</sup> Rank in MoE-NIRF  
Maruthamalai Road, Coimbatore, Tamil Nadu - 641 046.

<p><b>Dr J MANIVANNAN</b> Assistant Professor Department of Environmental Sciences Bharathiar University</p> <p>Tamil Nadu <b>E-mail:</b> drmani@buc.edu.in <b>Phone:</b> 9894907931 <b>Office Number:</b> 0422-2428399</p>	
<p><b>Research Area</b></p> <ul style="list-style-type: none"><li>• Environmental Health</li><li>• Molecular Systems Biology and Exposomics</li><li>• Industry 4.0 and 5.0</li></ul>	<p><b>Courses Teaching</b></p> <ul style="list-style-type: none"><li>• Environmental Toxicology</li><li>• Instrumental Methods, Data Analytics and Research Methodology</li><li>• Environmental Biotechnology</li><li>• Environmental Health</li><li>• Introduction Industry 4.0</li><li>• Environmental Impact Assessment</li></ul>
<p><b>Research Experience:</b> 16</p>	<p><b>Teaching Experience:</b> 9</p>
<p><b>Research Credentials</b> (as on September 2025 – Source: Google scholar) H-index: 18                      Citations: 937                      i10-index: 28</p>	
<p><b>Publications</b> International Journals: 52</p>	
<p><b>Career</b></p> <p><b>Other Institutes</b></p> <p><b>1. Designation : Scientist</b> Institution Name : Anna University - KBC-RC, MIT campus, Chennai Period : February 2016 - November 2016</p> <p><b>2. Designation : Post Doctoral Fellow</b> Institution Name : Anna University - KBC-RC, MIT campus, Chennai Period : April 2014 - January 2016</p> <p><b>At Bharathiar University</b></p> <p><b>1. Designation : Assistant Professor</b> Period : November 2016 - Till Date</p>	
<p><b>Education</b></p> <p><b>Ph. D.</b> Subject : Biotechnology Institution : Dept. of Biochemistry and Biotechnology, Annamalai University Affiliated University : Annamalai University Year of Award : September 2014</p> <p><b>M. Phil.</b> Subject : Biotechnology Institution : Dept. of Biochemistry and Biotechnology, Annamalai University Affiliated University : Annamalai University Year of Award : February 2011</p>	



# Bharathiar University

State University | "A<sup>++</sup>" Grade by NAAC | 46<sup>th</sup> Rank in MoE-NIRF  
Maruthamalai Road, Coimbatore, Tamil Nadu - 641 046.

Dr J MANIVANNAN , Assistant Professor , Department of Environmental Sciences

## M. Sc.

Subject : Biotechnology

Institution : Annamalai University

Affiliated University : Annamalai University

Year of Award : April 2009

## Projects

### National Level

Ongoing - completed - 2

## Research Guidance

### Completed

Ph.D. - 2

### On Going

Ph.D. - 2

## Institutional Responsibilities

### Committee member - DNA Seq Facility (CIC)

Period :Jan 2019 to Till date

Nature of Responsibility :

### Committee member - Air Quality Monitoring System (CIC)

Period :Jan 2024 to Till date

Nature of Responsibility :

### BOS member - Dept. of Env. Sciences

Period :Feb 2017 to Till date

Nature of Responsibility :

### Committee member - Orbitrap Mass (RUSA)

Period :Jan 2024 to Till date

Nature of Responsibility :

## Programs organized

1. Short term course on Environmental Studies - UGC MMTTC ( 2024-12-18 - 2024-12-12 )
2. Refresher course on Environmental Studies - UGC HRDC ( 2021-04-01 - 2021-04-15 )

## Publications

### International Journals - 52

#### 52. ZnO Nanoparticles Interacts With Unique Serum Proteins and Induce Stress Signaling During Hepatotoxicity

##### - A Proteomics and Molecular Pathways Study.

J Biochem Mol Toxicol. 2025 Sep;39(9):e70480. doi: 10.1002/jbt.70480. PMID: 40891651. (September 2025)

Maadurshni GB, Mahalakshmi B, Nagarajan M, Swathika P, Harinikkamatchi G, Anusha AK, Manivannan J.

#### 51. Biofabrication of Bismuth vanadate/Bacterial nanocellulose adsorbent-photocatalyst mesoporous

##### composite for an efficient removal of fluorochrome pollutant.

New Journal of Chemistry. 2025. Aug <https://doi.org/10.1039/D5NJ02109J> (August 2025)

Walling B, Bharali P, Ramachandran D, Viswanathan K, Dutta N, Singh NS, Hazarika S, Srivastava RK, Mahalakshmi B, Manivannan J, Sorhie V. Walling B, Bharali P, Ramachandran D, Viswanathan K, Dutta N, Singh NS, Hazarika S, Srivastava RK, Mahalakshmi B, Mani

#### 50. Bio-fabrication of biodegradable polyhydroxybutyrate/polycaprolactone based sorbent: a net zero-waste

##### approach for sustainable management of intricate hydrophobic pollutants.

International Journal of Biological Macromolecules. 2025 Jul 18:145825. <https://doi.org/10.1016/j.ijbiomac.2025.145825> (July 2025)

Acharjee SA, Bharali P, Ramachandran D, Kanagasabai V, Hazarika S, Dutta N, Mahalakshmi B, Manivannan J.



#### **49. Investigation on Physicochemical Attributes, Remediation Potential, and Therapeutic Perspective of a Bioamphiphile Produced by a Hydrocarbonoclastic Bacterium.**

ChemistrySelect. 2025 Jul;10(28):e01173. <https://doi.org/10.1002/slct.202501173> (July 2025)

Sorhie V, Alemtoshi, Bharali P, Ramachandran D, Kanagasabai V, Mahalakshmi B, Manivannan J, Walling B, Gogoi M, Hazarika S, Dutta N.

#### **48. Bacterial cell factories for sustainable production of green polyesters using saccharides: unlocking the potential to mitigate microplastic pollution.**

Journal of Polymer Research. 2025 Jul;32(7):1-22. <https://doi.org/10.1007/s10965-025-04473-2> (July 2025)

Acharjee SA, Bharali P, Ramachandran D, Kanagasabai V, Hazarika S, Koch PJ, Dutta N, Maadurshni GB, Manivannan J, Kumari S, Gogoi B.

#### **47. Human circulatory proteome interaction, oxidative stress-associated signalling and cardiovascular implications during titanium dioxide nanoparticle (TiO<sub>2</sub>-NP) exposure.**

Mol Omics. 2025 Jul 7;21(4):282-302. doi: 10.1039/d4mo00205a. PMID: 40202160. (July 2025)

Maadurshni GB, Mahalakshmi B, Nagarajan M, Manivannan J.

#### **46. Aluminium oxide nanoparticles (Al<sub>2</sub>O<sub>3</sub>-NPs) exposure impairs cardiovascular physiology and elevates health risk - proteomic and molecular mechanistic insights.**

Sci Total Environ. 2025 Jun 10;980:179576. doi: 10.1016/j.scitotenv.2025.179576. Epub 2025 May 3. PMID: 40319800. (June 2025)

Maadurshni GB, Mahalakshmi B, Nagarajan M, Manivannan J.

#### **45. Production of bacterial nanocellulose as green adsorbent matrix using distillery wastes for dye removal: a combined approach for waste management and pollution mitigation.**

Biomass Conversion and Biorefinery. 2025 Mar;15(5):7265-81. <https://doi.org/10.1007/s13399-024-05561-x> (March 2025)

Walling B, Borah A, Hazarika S, Bharali P, Ramachandran D, Kanagasabai V, Dutta N, Maadurshni GB, Manivannan J, Mudoi P, Kaman PK.

#### **44. Short-term exposure of 2.4 GHz electromagnetic radiation on cellular ROS generation and apoptosis in SH-SY5Y cell line and impact on developing chick embryo brain tissue.**

Mol Biol Rep. 2025 Jan 21;52(1):144. doi: 10.1007/s11033-025-10217-8. PMID: 39836269. (January 2025)

Deena K, Maadurshni GB, Manivannan J, Sivasamy R.

#### **43. 4-Methyl-2,4-bis(4-hydroxyphenyl)pent-1-ene (MBP) exposure induces hepatotoxicity and nephrotoxicity - role of oxidative stress, mitochondrial dysfunction and pathways of cytotoxicity.**

Toxicol Res (Camb). 2024 Oct 15;13(5):fae173. doi: 10.1093/toxres/fae173. PMID: 39417036; PMCID: PMC11474237. (October 2024)

Maadurshni GB, Nagarajan M, Mahalakshmi B, Sivasubramanian J, Hemamalini V, Manivannan J.

#### **42. Bacterial valorization of agricultural-waste into a nano-sized cellulosic matrix for mitigating emerging pharmaceutical pollutants: An eco-benign approach.**

International Journal of Biological Macromolecules. 2024 Oct 1;277:133684. <https://doi.org/10.1016/j.ijbiomac.2024.133684> (October 2024)

Walling B, Bharali P, Ramachandran D, Kanagasabai V, Dutta N, Hazarika S, Maadurshni GB, Manivannan J, Kumari S, Acharjee SA, Gogoi B.

#### **41. Polyhydroxybutyrate (PHB)-Based sustainable bioplastic derived from Bacillus sp. KE4 isolated from kitchen waste effluent.**

Sustainable Chemistry and Pharmacy. 2024 Jun 1;39:101507. <https://doi.org/10.1016/j.scp.2024.101507> (June 2024)

Acharjee SA, Bharali P, Ramachandran D, Kanagasabai V, Gogoi M, Hazarika S, Koch PJ, Dutta N, Maadurshni GB, Manivannan J, Kumari S.

#### **40. Bisphenol A (BPA) exposure aggravates hepatic oxidative stress and inflammatory response under hypertensive milieu - Impact of low dose on hepatocytes and influence of MAPK and ER stress pathways.**

Food Chem Toxicol. 2024 Jan;183:114197. doi: 10.1016/j.fct.2023.114197. Epub 2023 Nov 28. PMID: 38029875. (January 2024)

Nagarajan M, Maadurshni GB, Manivannan J.



**39. Exposure to low dose of Bisphenol A (BPA) intensifies kidney oxidative stress, inflammatory factors expression and modulates Angiotensin II signaling under hypertensive milieu.**

J Biochem Mol Toxicol. 2024 Jan;38(1):e23533. doi: 10.1002/jbt.23533. Epub 2023 Sep 18. PMID: 37718616. (January 2024)  
Nagarajan M, Maadurshni GB, Manivannan J.

**38. In-situ biofabrication of bacterial nanocellulose (BNC)/graphene oxide (GO) nano-biocomposite and study of its cationic dyes adsorption properties.**

Int J Biol Macromol. 2023 Nov 1;251:126309. doi: 10.1016/j.ijbiomac.2023.126309. Epub 2023 Aug 12. PMID: 37573902.  
(November 2023)  
Manivannan J, Ramachandran D, Viswanathan K, Hazarika S, Dutta N, Mudoji P, Manivannan J, Manjunath Kamath S, Kumari S, Vishwakarma V, Sorhie V, Gogoi B, Acharjee SA, Alemtoshi.

**37. System-wide health risk prediction for 4-methyl-2,4-bis(4-hydroxyphenyl)pent-1-ene(MBP), a major active metabolite of environmental pollutant and food contaminant - Bisphenol A.**

Toxicology. 2023 Feb;485:153414. doi: 10.1016/j.tox.2022.153414. Epub 2022 Dec 29. PMID: 36587891. (February 2023)  
Maadurshni GB, Nagarajan M, Priyadharshini S, Singaravelu U, Manivannan J.

**36. Al2O3 nanoparticles trigger the embryonic hepatotoxic response and potentiate TNF- $\alpha$ -induced apoptosis-modulatory effect of p38 MAPK and JNK inhibitors.**

Environ Sci Pollut Res Int. 2022 Aug;29(36):54250-54263. doi: 10.1007/s11356-022-19243-6. Epub 2022 Mar 17. PMID: 35301628. (August 2022)

Maadurshni GB, Tharani GK, Udayakumar I, Nagarajan M, Manivannan J.

**35. Systems toxicology approach explores target-pathway relationship and adverse health impacts of ubiquitous environmental pollutant bisphenol A.**

J Toxicol Environ Health A. 2022 Mar 19;85(6):217-229. doi: 10.1080/15287394.2021.1994492. Epub 2021 Oct 27. PMID: 34706627. (March 2022)

Nagarajan M, Maadurshni GB, Manivannan J.

**34. Exposure to zinc oxide nanoparticles (ZnO-NPs) induces cardiovascular toxicity and exacerbates pathogenesis - Role of oxidative stress and MAPK signaling.**

Chem Biol Interact. 2022 Jan 5;351:109719. doi: 10.1016/j.cbi.2021.109719. Epub 2021 Oct 23. PMID: 34699767. (January 2022)  
Nagarajan M, Maadurshni GB, Tharani GK, Udhayakumar I, Kumar G, Mani KP, Sivasubramanian J, Manivannan J.

**33. Exposure to a**

Hum Exp Toxicol. 2021 Dec;40(12\_suppl):S654-S665. doi: 10.1177/096032712111053285. Epub 2021 Nov 19. PMID: 34797181. (December 2021)

Nagarajan M, Raja B, Manivannan J.

**32. Systems level insights into the impact of airborne exposure on SARS-CoV-2 pathogenesis and COVID-19 outcome - A multi-omics big data study.**

Gene Rep. 2021 Dec;25:101312. doi: 10.1016/j.genrep.2021.101312. Epub 2021 Aug 12. PMID: 34401607; PMCID: PMC8358088. (December 2021)

Manivannan J, Sundaresan L.

**31. Thalidomide and Its Analogs Differentially Target Fibroblast Growth Factor Receptors: Thalidomide Suppresses FGFR Gene Expression while Pomalidomide Dampens FGFR2 Activity.**

Chem Res Toxicol. 2019 Apr 15;32(4):589-602. doi: 10.1021/acs.chemrestox.8b00286. Epub 2019 Mar 15. PMID: 30834740. (April 2019)

Sundaresan L, Kumar P, Manivannan J, Balaguru UM, Kasiviswanathan D, Veeriah V, Anishetty S, Chatterjee S.

**30. A proteome-wide systems toxicological approach deciphers the interaction network of chemotherapeutic drugs in the cardiovascular milieu.**

RSC Adv. 2018 Jun 4;8(36):20211-20221. doi: 10.1039/c8ra02877j. PMID: 35541641; PMCID: PMC9080753. (June 2018)  
Giri S, Manivannan J, Srinivasan B, Sundaresan L, Gajalakshmi P, Chatterjee S.

**29. Transcriptomic Analysis of Thalidomide Challenged Chick Embryo Suggests Possible Link between Impaired Vasculogenesis and Defective Organogenesis.**

Chem Res Toxicol. 2017 Oct 16;30(10):1883-1896. doi: 10.1021/acs.chemrestox.7b00199. Epub 2017 Sep 27. PMID: 28892372. (October 2017)

Veeriah V, Kumar P, Sundaresan L, Mafitha Z, Gupta R, Saran U, Manivannan J, Chatterjee S.



**28. Oxidative environment causes molecular remodeling in embryonic heart-a metabolomic and lipidomic fingerprinting analysis.**

Environ Sci Pollut Res Int. 2017 Oct;24(30):23825-23833. doi: 10.1007/s11356-017-9997-y. Epub 2017 Sep 2. PMID: 28866837. (October 2017)

Manickaraj S, Thirumalai D, Manjunath P, Sekarbabu V, Jeganathan S, Sundaresan L, Subramaniam R, Jeganathan M.

**27. A novel liquid chromatography/tandem mass spectrometry (LC-MS/MS) based bioanalytical method for quantification of ethyl esters of Eicosapentaenoic acid (EPA) and Docosahexaenoic acid (DHA) and its application in pharmacokinetic study.**

J Pharm Biomed Anal. 2017 Jul 15;141:250-261. doi: 10.1016/j.jpba.2017.04.002. Epub 2017 Apr 8. PMID: 28463780. (July 2017)  
Viswanathan S, Verma PRP, Ganesan M, Manivannan J.

**26. Environmental endocrine disrupting chemicals (EDCs) and its systems level toxicological mechanisms – an environmental health study**

"Life Science Archives (LSA)." (2017).Jan (January 2017)

Jeganathan Manivannan, Usha singaravelu

**25. Systems biological understanding of the regulatory network and the possible therapeutic strategies for vascular calcification.**

Mol Biosyst. 2016 Nov 15;12(12):3683-3694. doi: 10.1039/c6mb00557h. PMID: 27752677. (November 2016)

Manivannan J, Prashanth M, Saravana Kumar V, Shairam M, Subburaj J.

**24. Role of Antioxidants in Human Health. InOmega-3 Fatty Acids: Keys to Nutritional Health**

2016 Sep 16 (pp. 501-512).Cham: Springer International Publishing. (September 2016)

Manivannan J, Silambarasan T, Shanthakumar J, Suganya N, Kanchana S.

**23. Disturbed flow mediated modulation of shear forces on endothelial plane: A proposed model for studying endothelium around atherosclerotic plaques.**

Sci Rep. 2016 Jun 3;6:27304. doi: 10.1038/srep27304. PMID: 27255968; PMCID: PMC4891674. (June 2016)

Balaguru UM, Sundaresan L, Manivannan J, Majunathan R, Mani K, Swaminathan A, Venkatesan S, Kasiviswanathan D, Chatterjee S.

**22. Prevention of cardiac dysfunction, kidney fibrosis and lipid metabolic alterations in l-NAME hypertensive rats by sinapic acid--Role of HMG-CoA Reductase.**

Eur J Pharmacol. 2016 Apr 15;777:113-23. doi: 10.1016/j.ejphar.2016.03.004. Epub 2016 Mar 2. PMID: 26945821. (April 2016)

Silambarasan T, Manivannan J, Raja B, Chatterjee S.

**21. Oral administration of veratric acid, a constituent of vegetables and fruits, prevents cardiovascular remodelling in hypertensive rats: a functional evaluation.**

Br J Nutr. 2015 Nov 14;114(9):1385-94. doi: 10.1017/S0007114515003086. Epub 2015 Sep 8. PMID: 26346559. (November 2015)

Silambarasan T, Prashanth M, Manivannan J, Silambarasan T, Prahalathan P, Kumar S, Mishra SK.

**20. Systems pharmacology and molecular docking strategies prioritize natural molecules as cardioprotective agents.**

RSC Advances. 2015;5(94):77042-55. (September 2015)

Manivannan J, Silambarasan T, Kadarkarairaj R, Raja B

**19. Sinapic acid protects heart against ischemia/reperfusion injury and H9c2 cardiomyoblast cells against oxidative stress.**

Biochem Biophys Res Commun. 2015 Jan 24;456(4):853-9. doi: 10.1016/j.bbrc.2014.12.022. Epub 2014 Dec 13. PMID: 25511706. (January 2015)

Silambarasan T, Manivannan J, Priya MK, Suganya N, Chatterjee S, Raja B.

**18. Diosgenin, a steroidal saponin, prevents hypertension, cardiac remodeling and oxidative stress in adenine induced chronic renal failure rats.**

RSC Advances. 2015;5(25):19337-44. (January 2015)

Manivannan J, Shanthakumar J, Silambarasan T, Balamurugan E, Raja B.



**17. Sinapic acid prevents hypertension and cardiovascular remodeling in pharmacological model of nitric oxide inhibited rats.**

PLoS One. 2014 Dec 22;9(12):e115682. doi: 10.1371/journal.pone.0115682. PMID: 25531679; PMCID: PMC4274097. Silambarasan T, Manivannan J, Krishna Priya M, Suganya N, Chatterjee S, Raja B.

**16. Diosmin pretreatment improves cardiac function and suppresses oxidative stress in rat heart after ischemia/reperfusion.**

Eur J Pharmacol. 2014 Aug 5;736:131-7. doi: 10.1016/j.ejphar.2014.04.026. Epub 2014 Apr 24. PMID: 24769512. (August 2014) Senthamizhselvan O, Manivannan J, Silambarasan T, Raja B.

**15. Phylogenetic analysis and codon usage bias estimation of the cDNA of catfish, *Plotosus lineatus* encoding toxin I natterin-like protein.**

Global Journal of Traditional Medicinal Systems, 2014, Vol. 3, No. 1, 1-7 ref. 37 (July 2014) Barathkumar TR, Jeganathan Manivannan JM, Muthusamy Thangaraj MT.

**14. Diosgenin interferes coronary vasoconstriction and inhibits osteochondrogenic transdifferentiation of aortic VSMC in CRF rats.**

Biochimie. 2014 Jul;102:183-7. doi: 10.1016/j.biochi.2014.03.011. Epub 2014 Apr 15. PMID: 24742379. (July 2014) Manivannan J, Shanthakumar J, Arunagiri P, Raja B, Balamurugan E.

**13. Valproic acid prevents the deregulation of lipid metabolism and renal renin-angiotensin system in L-NAME induced nitric oxide deficient hypertensive rats.**

Environ Toxicol Pharmacol. 2014 May;37(3):936-45. doi: 10.1016/j.etap.2014.02.008. Epub 2014 Mar 12. PMID: 24705342. (May 2014) Rajeshwari T, Raja B, Manivannan J, Silambarasan T, Dhanalakshmi T.

**12. Valproic acid attenuates blood pressure, vascular remodeling and modulates ET-1 expression in L-NAME induced hypertensive rats.**

Biomedicine & Preventive Nutrition. 2014 Apr 1;4(2):195-202. (April 2014) Rajeshwari T, Raja B, Manivannan J, Silambarasan T.

**11. In silico sequence analysis, homology modelling and functional annotation of toxin I hypothetical protein of catfish, *Plotosus lineatus*.**

International Journal of Pharmaceutical & Biological Archive 4 (4) (April 2014) Barathkumar TR, Jeganathan Manivannan JM, Muthusamy Thangaraj MT.

**10. Diosgenin improves vascular function by increasing aortic eNOS expression, normalize dyslipidemia and ACE activity in chronic renal failure rats.**

Mol Cell Biochem. 2013 Dec;384(1-2):113-20. doi: 10.1007/s11010-013-1788-2. Epub 2013 Aug 23. PMID: 23975507. (December 2013) Manivannan J, Balamurugan E, Silambarasan T, Raja B.

**9. Effect of diosgenin on cardiac tissue lipids, trace elements, molecular changes, TNF- $\alpha$  and IL-6 expression in CRF rats.**

Biomedicine & Preventive Nutrition. 2013 Oct 1;3(4):389-92. (October 2013) Manivannan J, Shanthakumar J, Rajeshwaran K, Arunagiri P, Balamurugan E.

**8. Effect of diosgenin on cardiac tissue lipids, trace elements, molecular changes, TNF- $\alpha$  and IL-6 expression in CRF rats.**

Biomedicine & Preventive Nutrition. 2013 Oct 1;3(4):389-92. (October 2013) Manivannan J, Shanthakumar J, Rajeshwaran K, Arunagiri P, Balamurugan E.

**7. Computational systems biology of oxLDL induced macrophage foam cell formation-A multilayer regulatory network analysis of atherogenic process.**

Journal of Chemical and Pharmaceutical Research. 2013;5(10):39-44. (October 2013) Prashanth M, Manivannan J, Silambarasan T, Shanthakumar J, Balamurugan E.



**6. Aluminium induced metabolic changes in kidney and heart tissue of mice: a Fourier transform infrared spectroscopy study.**

RSC Advances. 2013;3(43):20896-904. (September 2013)  
Sivakumar S, Sivasubramanian J, Manivannan J, Raja B.

**5. Diosgenin prevents hepatic oxidative stress, lipid peroxidation and molecular alterations in chronic renal failure rats.**

International Journal of Nutrition, Pharmacology, Neurological Diseases. 2013 Jul 1;3(3):289-93. (July 2013)  
Manivannan J, Arunagiri P, Sivasubramanian J, Balamurugan E.

**4. Determination of aluminium induced metabolic changes in mice liver: a Fourier transform infrared spectroscopy study.**

Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy. 2013 Jun 1;110:241-8. (July 2013)  
Sivakumar S, Sivasubramanian J, Khatiwada CP, Manivannan J, Raja B.

**3. Diosgenin attenuates vascular calcification in chronic renal failure rats.**

Mol Cell Biochem. 2013 Jun;378(1-2):9-18. doi: 10.1007/s11010-013-1588-8. Epub 2013 Feb 20. PMID: 23423339. (June 2013)  
Manivannan J, Barathkumar TR, Sivasubramanian J, Arunagiri P, Raja B, Balamurugan E.

**2. Molecular metabolic fingerprinting approach to investigate the effects of borneol on metabolic alterations in the liver of nitric oxide deficient hypertensive rats.**

Mol Cell Biochem. 2012 Mar;362(1-2):203-9. doi: 10.1007/s11010-011-1143-4. Epub 2011 Nov 2. PMID: 22045066. (March 2012)  
Saravanakumar M, Manivannan J, Sivasubramanian J, Silambarasan T, Balamurugan E, Raja B.

**1. Evaluation of in vitro antioxidant and antimicrobial potential of methanolic leaf extract of Anisomeles malabarica (Linn.).**

J Pharm Res 3, 1188-1191 (September 2010)  
Boobalan Raja BR, Jeganathan Manivannan JM.

## Projects

### Completed - 2

1. Traffic-related air pollution (TRAP) hotspots in Coimbatore city and its adverse impacts on human health – a multidisciplinary environmental health study TANSCH 33,78,500 (April 2021 - October 2024)
2. Exploring novel pathways involved in oxidized low density lipoprotein (oxLDL) induced vascular smooth muscle cell (VSMC) foam cell formation in atherosclerosis and pharmacological effects of mitochondria targeted antioxidant - mitoTEMPO DST – SERB 40,15,000 (February 2016 - July 2019)