Bio data

1. Name : **Dr. V. Ravishankar Rai**
2. Designation: Professor

Chairman : Board of Studies in Microbiology, University of Mysore

Chairman: Board of Studies in Clinical Research & Clinical Data Management

Coordinator: Department Science and Technology(DST) PROMOTION OF UNIVERSITY RESEARCH AND SCIENTIFIC EXCELLENCE (PURSE)Program

Coordinator : UGC Innovative Program (PG Diploma in Food Quality and Safety)

Nodal officer : Enabling industry connect to higher Education Institutes, University of Mysore

Coordinator: Regional Science Centre, Mysore (Karnataka State Govt)

Convener : Scientific committee for Institute of Excellence , Vijnana Bhavan

Coordinator :UPE (UGC) Infra structure Facilities Improvement

Coordinator : UPE(UGC) Campus Green Initiative

Coordinator: DST FIST Program

Convener : Canteen Monitoring Committee, University of Mysore

Sectional President: 105th Indian Science Congress to be hosted by Imphal University, Hyderabad.

3. Address : Department of Studies In Microbiology
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4. Area of Specialization/interest:
Plant Biotechnology, Agriculture Microbiology, Food Technology, Forest Pathology, Endophytic Fungi, Medicinal Plants, Phytochemistry, Cell and Tissue Culture, Bacterial Quorum Sensing, Microbial Mediated Corrosion

5.**Research and Teaching Experience**

i. Lecturer at St. Philomena College, Puttur, D.K. for one and half years (from 1.9.1981 to 30.12.1982).
ii. Worked for the Ph.D. thesis entitled '*In vitro* studies and cytology of some commercially important forest trees' in the Department of Studies in Botany, University of Mysore (1983 -

88).

iii. Temporary lecturer in Department of Studies in Botany, University of Mysore 16.12.1988 to 31.1.1991.

iv. CSIR - Research Associate on the problem entitled 'Biotechnological approach to conserve the Forest Trees of Western Ghats' in Department of Studies in Botany, University of Mysore, Mysore from 1.2. 1991 to 4.9. 1992.

v. Permanent Lecturer in the Department of Studies in Botany, University of Mysore, Mysore from 5.9.1992 to 31. 10 1994.

vi. Lecturer in the Department of Studies in Applied Botany and Biotechnology, University of Mysore from 31.10.1994 to06.09.2002

vii. Reader in the Department of Studies in Applied Botany and Biotechnology, University of Mysore from 06-09-2002 to 22.3.2007

viii. Professor , Department of Studies in Microbiology , University of Mysore, Since 23.3.2007

ix. Professor and Coordinator, UGC Innovative Programme, Department of Studies in Microbiology, University of Mysore since August 2012.

6. Awards/Recognitions:

- Visiting Fellow, UNESCO Biotechnology Action Council Programme (1996)
- Indo-Israel Culture Exchange Programme, Fellowship , UGC, New Delhi (1998)
- DBT Overseas Fellowship(2008)
- Indo-Hungarian Educational Exchange Programme fellowship (2011)
- Indian National Science Academy under International Scientific Collaboration and Bilateral Exchange program to visit Turkey (2015)
- Incoming fellowship from Cardiff University, United Kingdom (2017-2018)

Research Projects: (Principal Investigator)

Completed:

1. **1997-2002** : Department of Biotechnology (DBT) Government of India, India- Micropropagation and *In vitro* preservation Studies on rare and threatened flowering Plants with special Reference to Karnataka (21 Lakhs)
2. **2003-2006**: Department of Biotechnology (DBT) , Government of India , India Reintroduction of Rare flowering plants to the wild and their field evaluation. (24 lakhs)
3. **2003-2007**: Department of Science and Technology (DST) Government of India, India. Bioprospecting and *in vitro* Studies on Medicinal Forest Tree - *Hydnocarpus laurifolia* Sleumer (15 lakhs).
4. **2004-2007**: University Grants Commission, New Delhi (UGC) Nursery diseases of some important forest trees and their management. (6 lakhs)
5. **2006-2012**: National Medicinal Plant Board, Government of India. (NMPB) Ex-situ conservation and utilization of medicinal plants of Karnataka for sustainable development (15 lakhs)
6. **2008-2011**: University Grants Commission, New Delhi(UGC) Genetic diversity and *in vitro* propagation and characterization of bioactive compounds of *Hypericum* species. (6lakhs)

7. **2011-2014**: DIBER, DRDO, Govt. of India. Endophytic microorganisms from rare medicinal plants producing bioactive compounds (10 lakhs)
8. **2009-2012**: MHRD, Govt of India, Institution of Excellence (IOE) Biodiversity, conservation and Phytochemical, Molecular Characterization of rare Medicinal Plants of Western Ghats (7.5 lakhs)
9. **2012-2016** : Indian Council of Medical Research , Govt. of India. Studies on Quorum Sensing Inhibitory Activity of Medicinal Plants (15 lakhs)

On going

1. **2012-2017**: University with Potential of Excellence (UPE) Project (UGC) Biosynthesis and cytotoxic effect of nanoparticles.
2. **2013-2018**: *Centre with Potential for Excellence in Particular Area*. (CPEPA) Biosynthesis of nanoparticles and its biological applications
3. **2017-2020** : DRDO, New Delhi Biofilm and quorum sensing inhibitory phytochemicals for the control of food-borne pathogens in fruits and vegetables.(18 lakhs)

Coordinator for Projects

1. **2011-2016** : FIST Programme , Dept. of Science and Technology(DST) Govt. of India (35 lakhs)
2. **2012-2017** : UGC Innovative Program on Food Safety and Quality (58 lakhs)
3. **2012-2018** : University with Potential of Excellence (UGC) Infra structure Faculties Improvement (4.5 Crores)
4. **2014-2019:** Regional Science Centre, Mysore (Karnataka State Govt)
5. **2014-2019**: University with Potential of Excellence (UGC) campus green Initiative (75 lakhs)
6. **2014-2022:** Department Science and Technology (DST) Promotion of University Research and Scientific Excellence (17 Crores)

5. Number of Ph.D candidates successfully completed: 18

   Number of Ph. D candidates currently working: 10

6. Number of M. Phil candidates successfully completed: 19

7. **Publications**

Reviews in Books

1. Jamuna Bai A, Ravishankar Rai V. 2017. Food Fraud: Detection, Prevention and Regulations. In Food Safety and Protection. Editors: Ravishankar Rai V and Jamuna Bai A. CRC Press, Taylor and Francis 495-530.
2. Jamuna Bai A, Ravishankar Rai V. 2017. Nanobiosensors and their application in food safety. In Trends in Food Safety and Protection. Editors: Ravishankar Rai V and Jamuna Bai A. CRC Press, Taylor and Francis 277-300

3. Jamuna Bai A, Ravishankar Rai V. 2017. Effect of nanoparticles on the gastrointestinal tract. In Nanotechnology Applications in Food Industry. Editors: Ravishankar Rai V and Jamuna Bai A. CRC Press, Taylor and Francis (In Press).
4. Rajesh PS, Ravishankar Rai V. 2017. Market Potential of Food Nanotechnology Innovations. In Nanotechnology Applications in Food Industry. Editors: Ravishankar Rai V and Jamuna Bai A. CRC Press, Taylor and Francis (In Press).
5. Kangkana B, Ravishankar Rai V. 2017. Regulatory Framework for Food Nanotechnology. In Nanotechnology Applications in Food Industry. Editors: Ravishankar Rai V and Jamuna Bai A. CRC Press, Taylor and Francis (In Press).
6. Jamuna Bai A, Ravishankar Rai V (2017) Entosis Apoptosis and Beyond: The Many Ways Cells Die. James A Radosevich (Editor). Wiley (In Press)
7. Rajesh P.S. and Ravishankar Rai V (2017) Quorum quenching endophytes: A novel approach for sustainable development of Agroecosystem. Endophytes: Biology and Biotechnology – Vol 1. Prof. Dr. Dinesh K. Maheshwari (Editor) Springer. (In Press)
8. Jamuna Bai A, Ravishankar Rai V. (2014) Environmental risk, human health and toxic effects of nanoparticles. In Nanomaterials for Environmental Protection. Editors: Boris I. Kharisov, Oxana V. Kharissova, H. V. Rasika Dias. John Wiley & Sons
9. Jamuna Bai A, Ravishankar Rai V (2014) The Role of Nanotechnology in Medicine as Drug Delivery Agents, Therapeutics, Diagnostic and Imaging Tools. Advanced Science, Engineering and Medicine. 6, 1–11.
10. Jamuna A Bai and Ravishankar Rai V (2014) Quorum sensing in food borne bacteria and use of quorum sensing inhibition as food intervention technique. In: V Ravishankar Rai,and Jamuna A. Bai (2014) Microbial Food Safety and Preservation Techniques. (Edited Book) CRC Press, United States. Pp.399-414.
11. Jamuna A Bai and Ravishankar Rai V (2014) Application of Diary propionic acid bacteria in fermented foods. In: Beneficial Microbes in Fermented and Functional Foods. V Ravishankar Rai,and Jamuna A. Bai (2014) (Edited Book) CRC Press, United States. Pp.399-414.
12. V Ravishankar Rai and Rajesh P (2014) Probiotics: Live medium in human gut. In: Beneficial Microbes in Fermented and Functional Foods. . V Ravishankar Rai,and Jamuna A. Bai (2014) (Edited Book) CRC Press, United States. Pp.399-414.
13. Pradeepa V. Samaga and V. Ravishankar Rai (2014) Diversity and Bioactivity of Endophytic Fungi from Nothapodyte foetida (Wt.) Sleumer and Hypericum mysorense Heyne . Kharwar, R.N., Upadhyay, R., Dubey, N., Raghuwanshi, R. (Eds) Microbial Diversity and Biotechnology in Food Security. Springer. 91-102
14. T. S. Avinash and Ravishankar V. Rai (2014) Antifungal Activity of Plant Growth Promoting Rhizobacteria against *Fusarium oxysporum* and *Phoma*. Kharwar, R.N., Upadhyay, R., Dubey, N., Raghuwanshi, R. (Eds) Microbial Diversity and Biotechnology in Food Security. Springer. 257-264.
15. Jamuna Bai A, Ravishankar Rai V (2014) Quorum-sensing systems in Pseudomonas In: Quorum Sensing vs Quorum Quenching: A Battle with No End in Sight. Editor: Kalia, Vipin Chandra. Springer

16. Jamuna Bai A and V. Ravishankar Rai (2013) Microbial biofilms and their control by various antimicrobial strategies. Microbial pathogens and strategies for combating them: science, technology and education (A. Méndez-Vilas, Ed. Formatex Research Center) 124-133.
17. V. Ravishankar Rai and Jamuna Bai A (2012). Nanoparticles and their potential application as antimicrobials. In: Science against Microbial Pathogens: Communicating Current Research and Technological advances. A Mendez Vilas (Ed.) Badajoz, Spain. Pp 197-209
18. A Jamuna Bai and V. Ravishankar Rai (2011) Bacterial Quorum Sensing and Food Industry. Comprehensive Reviews in Food Science and Food safety. 10:183-193. (IF: 4.903) (Wiley)
19. Rajeev Bhat, Ravishankar Rai V and AA Karim (2010) Mycotoxins in Food and Feed – Present Status and Future Concerns. Comprehensive Reviews in Food Science and Food safety. 9:51-81 (IF: 4.903) (Wiley)
20. V. Ravishankar Rai and T Mamatha (2010) Seed mycoflora and physicochemical and biochemical changes in tree seeds during storage. In: Proceedings of Tree Seed symposium: Recent Advances in Seed Research and *Ex situ* Conservation, Taipei, Taiwan. 165-184.
21. Rajeev Bhat and Ravishankar Rai V (2009) Plant based edible vaccines –Prospects and perspectives. In: Ravishankar Rai V and Rajeev Bhat (Editors) Biotechnology Concepts and Applications. Alpha Science International, UK. For India Narosa Publisher, New Delhi. pp. 333-358.
22. Ravishankar Rai. V and Bhanumathi. (2009) Forest Pathology in India – A Review. In: Mycology in the New Millennium – Prospects and Outlook (Ed. KR Sridhar) Published by IK International, New Delhi, 78-106.
23. Ravishankar Rai V and A G Pradeep (2007) Eco-friendly measures to safeguard farmers saved seeds from fungal pathogens .In: Seed Borne diseases Eco-friendly management. Scientific Publishers Jodhpur, India, 131-136.
24. Ravishankar Rai V and Thippaswamy (2007) Evaluation of the efficacy of biopesticides on seed mycoflora and seedling quality of some oil seed crops In: Seed Borne diseases Eco-friendly management Scientific Publishers Jodhpur ,India Page No 191-198.
25. V. Ravishankar Rai (2005) Somatic Embryogenesis in Sandalwood. In: Protocols of Somatic Embryogenesis-Woody Plants (Eds: S. M. Jain and P.K. Gupta). Springer 497-504.
26. Ravishankar Rai V. and T. Mamatha (2005) Seedling diseases of some important forest trees In: Proceedings of IUFRO Meeting on Diseases and Insects in Forest Nurseries (Ed: Lilja. J R Sutherland, M Poteri and C Mohanan) Finnish Forest Research Institute, Page 51-63

27. Ravishankar Rai V. and T. Mamatha (2004) Fungal Diseases of Forest Tree Species in India and their Management (Ed. Sampat Nehra). Aavishkar Publishers & Distributors, India. 69-83
28. Ravishankar Rai (1999) Biotechnology of Tree spices of South India. In: Role of Biotechnology in Medicinal and Aromatic plants (Edited by I. A. Khan) Ukaaz Publication, Hyderabad. Page No. 274-290.

Edited Books

1. Ravishankar Rai. V and Rajeev Bhat (2009) Biotechnology: Concepts and Applications (Edited Book) Alpha Science International, UK. For India Narosa Publisher, New Delhi.
2. V Ravishankar Rai and Jamuna A. Bai (2014) Microbial Food Safety and Preservation Techniques. (Edited Book) CRC Press, United States.
3. V Ravishankar Rai and Jamuna A. Bai (2014) Beneficial Microbes in Fermented and Functional Foods (Edited Book) CRC Press, United States.
4. V Ravishankar Rai (2016) Advances in Food Biotechnology. (Edited Book) Wiley Publisher, UK.
5. V Ravishankar Rai and Jamuna A. Bai (2017) Food Safety and Protection (Edited Book) CRC Press, United States.
6. V Ravishankar Rai and Jamuna A. Bai (2017) Trends in Food Safety and Protection (Edited Book) CRC Press, United States.
7. V Ravishankar Rai and Jamuna A. Bai (2017) Nanotechnology Applications in Food Industry (Edited Book) CRC Press , United States

Publications in Refereed Journal

1. Shastry RP, Dolan SK, Abdelhamid Y, Vittal RR, Welch M (2018) Purification and characterisation of a quorum quenching AHL-lactonase from the endophytic bacterium Enterobacter sp. CS66. FEMS Microbiol Lett. 1; 365(9).
2. Govindappa M, Hemashekhar B, Arthikala MK, Ravishankar Rai V, Y.L. Ramachandra (2018). Characterization, antibacterial, antioxidant, antidiabetic, anti-inflammatory and antityrosinase activity of green synthesized silver nanoparticles using Calophyllum tomentosum leaves extract. 9: 400-408.
3. Popli D, Anil V, Subramanyam AB, Ranjitha VR, Rao SN, Rai RV, Govindappa M. (2018) Endophyte fungi, Cladosporium species-mediated synthesis of silver nanoparticles possessing in vitro antioxidant, anti-diabetic and anti-Alzheimer activity. Artif Cells Nanomed Biotechnol. 5:1-8.
4. Ranjitha VR, Ravishankar VR (2018). Extracellular Synthesis of Selenium Nanoparticles from an Actinomycetes Streptomyces griseoruber and Evaluation of its Cytotoxicity on HT-29 Cell Line. Pharm Nanotechnol. 2018;6(1):61-68.

5. Banerjee K, Vittal RR (2017). *Aspergillus fischeri* Mediated Biosynthesis of Gold Nanoparticles and their Beneficially Comparative Effect on Normal and Cancer Cell Lines. Pharm Nanotechnol. 5(3):220-229.
6. Ravindra Walmiki, Manasa & Vittal, Ravishankar (2017). In vitro Analysis of Super Critical CO2 Extracted Essential Oils Against the Food-borne Pathogenic Bacteria. Journal of Biologically Active Products from Nature. 7: 452-462.
7. P. Sankar Ganesh and V. Ravishankar Rai (2017) Attenuation of quorum-sensing-dependent virulence factors and biofilm formation by medicinal plants against antibiotic resistant *Pseudomonas aeruginosa*. Journal of Traditional and Complementary Medicine. 1-8. (IF=0.553)
8. Ravindra Walmiki, Manasa & Vittal, Ravishankar. (2017). Cell Attachment Inhibition and Anti-biofilm Activity of Syzygium aromaticum , Cuminum cyminum and Piper nigrum Essential Oils Against Pathogenic Bacteria. Journal of Essential Oil Bearing Plants. 1-10. 10.1080/0972060X.2017.1287011.
9. Ranjitha VR, V. Ravishankar Rai (2017). Actinomycetes mediated synthesis of gold nanoparticles from the culture supernatant of Streptomyces griseoruber with special reference to catalytic activity. 3 Biotech. 2017 :7(5):299
10. Jamuna Bai A, V. Ravishankar Rai and Umashankar M (2017) Anticancer activity of metal nanoparticles and their peptide conjugates against human colon adenorectal carcinoma cells. Artificial Cell, Nanomedicine and Biotechnology. 1-8.
11. Saket Siddharth and Ravishankar V Rai (2017) Actinomycetes as a Paramount Source of Biologically Important Enzyme Inhibitors – “A Boon to Mankind”. Current Bioactive Compounds. (In Press)
12. Charan Kumar HC, Shilpa R, Ravishankar Rai V and Ananda S (2017) Electrochemical Degradation of Acridine Orange Dye at Pd/graphite Modified Electrode in Aqueous Solution. International Journal of Applied Chemistry 13: 219-234
13. Kumar Kalavathi Murugan, Chandrappa Chinna Poojari, Channabasava Ryavalad, Ramachandra Yarappa L, Padmalatha Rai S, Ravishankar Rai V and Govindappa M (2017) Anti-diabetic Activity of Endophytic Fungi, Penicillium Species of Tabebuia argentea; in Silico and Experimental Analysis. Research Journal of Phytochemistry. 11 : 90-110
14. Balakrishna Uma, Sannaiah Ananda, Vittal Ravishankar Rai, Kiana Alasvand Zarasvand
(2017) An Investigation on Kinetics of Photo Catalysis, Characterization, Antibacterial and Antimitotic Property of Electrochemically Synthesized ZnS and Nano Photocatalysts. 6. 10.4236/mrc.2017.61003
15. Jamuna Bai A, V. Ravishankar Rai (2016). Antimicrobial, Biofilm Inhibitory and Anti-infective Activity of Metallic Nanoparticles Against Pathogens MRSA and Pseudomonas aeruginosa PA01 Pharmaceutical Nanotechnology. 5: 1-6.

16. Kangkana Banerjee and Ravishankar Rai Vittal (2017) A Review on Mycosynthesis, Mechanism, and Characterization of Silver and Gold Nanoparticles, Bionanoscience (In Press)
17. Kangkana Banerjee and Ravishankar Rai Vittal (2017) *Aspergillus fischeri* Mediated Biosynthesis of Gold Nanoparticles and their Beneficially Comparative Effect on Normal and Cancer Cell Lines. Pharmaceutical Nanotechnology. 5. DOI: 10.2174/2211738505666170522153157.
18. Keerthi Kumari C N, Jamuna Bai A. , Ravishankar Rai V. (2017) Endophytic Peptides - A Source of Therapeutic Agents. *C*urrent Protein & Peptide Science (IF=2.441) (Bentham science), 1-7.
19. Raksha K, Ramesh S, Pavan Kumar Chottanahalli, Netkal M. Madegowda, V. Ravishankar Rai, Sannaiah Ananda (2017) Electrochemical synthesis of hierarchal flower-like hierarchical In_2O_3/ZnO nanocatalyst for textile industry effluent treatment, photo-voltaic, OH scavenging and anti-bacterial studies. Catalysis Communications, 89, 10, 2017, 25–28 (IF= 3.389) (Elsevier)
20. P Sankar Ganesh and Ravishankar Vittal Rai (2016) Inhibition of quorum sensing controlled virulence factors of Pseudomonas aeruginosa PAO1 by Murraya koenigii essential oil: Study in a *Caenorhabditis elegans* N2 model. Journal of Medical Microbiology (in Press). (IF: 2.248) (Microbiology Society)
21. Jamuna Bai A, V. Ravishankar Rai (2016). Effect of small chain N-acyl homoserine lactone quorum sensing signals on biofilms of food-borne pathogens. Journal of Food Science and Technology. 53(9):3609-3614. (IF: 1.241) (Springer)
22. Kiana Alaswand Zaraswand and V. Ravishankar Rai (2016) Identification of the traditional and non-traditional sulfate-reducing bacteria associated with corroded ship hull. 3 Biotech 6:197(Springer)
23. Mahesh Bhat, S. L. Belagali, P. Rajesh Shastry and V. Ravishankar Rai (2016) Synthesis, characterization, and biological study of phenylalanine amide derivatives. Monatshefte für Chemie. 147 (11), pp 2001–2008. (IF=1.222) (Springer)
24. Kiana Alaswand Zaraswand and V. Ravishankar Rai (2016) Inhibition of a sulfate reducing bacterium, *Desulfovibrio marinisediminis* GSR3, by biosynthesized copper oxide nanoparticles. 3Biotech 84(6) 1-7. (Springer)
25. Rajesh P.S. and Ravishankar Rai V. (2016) Inhibition of QS-regulated virulence factors in *Pseudomonas aeruginosa* PAO1 and *Pectobacterium carotovorum* by AHL-lactonase of endophytic bacterium *Bacillus cereus* VT96. Biocatalysis and Agricultural Biotechnology: 7, 154-163. (Elsevier)
26. Kangkana Banerjee and V. Ravishankar Rai (2016) Study on green synthesis of gold nanoparticles and their potential applications as catalysts. Journal of Cluster Science. 27, 1307-1315 (IF: 1.302) (Springer)
27. T.S. Avinash and Ravishankar V. Rai (2013) Plant growth promoting rhizobacteria: A boon to Agriculture. International Journal of Agricultural and Food Science. 6(2): 28-36.

28. Rajesh P.S. and Ravishankar Rai V. (2015). Purification and antibiofilm activity of AHL-lactonase from endophytic *Enterobacter aerogenes* VT66. International Journal of Biological Macromolecules. 81, 1046- 52. (IF: 3.138) (Elsevier)
29. Pallavi Ananda K and V Ravishankar Rai (2015) Role of Nanotechnology in epigenetic reprogramming. Stem Cells and Development. 24, 535-549. (IF= 3.777) (Marry Anna Liebert)
30. Kangkana Banerjee and V. Ravishankar Rai (2015) Preliminary Screening of Mycochemicals in Aspergillus fischeri for Synthesizing Silver Nanoparticles and Their Antioxidant Activity. Materials Focus. 4: 1-7. (American Scientific Publishers)
31. Pradeepa V Samaga and V Ravishankar Rai (2015) Diversity and bioactive potential of endophytic fungi from Nothapodytes foetida, *Hypericum mysorense* and *Hypericum japonicum* collected from Western Ghats of India. Annals of Microbiology. DOI 10.1007/s13213-015-1099-9 (IF: 1.232) (Springer)
32. P. Sankar Ganesh, V. Ravishankar Rai (2015) Evaluation of Anti-bacterial and Anti-quorum Sensing Potential of Essential Oils Extracted by Supercritical CO2 Method against *Pseudomonas aeruginosa*. Journal of Essential Oil Bearing Plants. 18, 264-275. (IF: 0.313) (Taylor and Francis)
33. P. Sankar Ganesh and Ravishankar Rai V (2015) In vitro anti-biofilm activity of *Murraya koenigii* essential oil extracted using supercritical fluid CO_2 against *Pseudomonas aeruginosa* PAO1. Natural Product Research. DOI: 10.1080/14786419.2015.1004673. (IF: 0.919) (Taylor and Francis)
34. Mohammed Aman, Ravishankar Rai V. (2015), Potent toxigenic effect of *Mycosphaerella musicola* on locally growing banana varieties, Phytoparasitica, DOI 10.1007/s12600-015-0456-3 (IF: 1.034) (Taylor and Francis)
35. Rajesh P.S. and Ravishankar Rai V. (2015). Use of aiiA gene amplification for AHL-lactonase production from endophytic bacterium Enterobacter species. International Journal of Biological Macromolecules. 72, 1013- 17. (IF: 3.138) (Elsevier)
36. Srinath BS and Ravishankar Rai V (2015) Biosynthesis of Gold nanoparticles using extracellular molecules produced by *Enterobacter aerogenes* and their catalytic study. Journal of Cluster Science DOI: 10.1007/s10876-014-0835-9 (IF: 1.302) (Springer)
37. Srinath BS and Ravishankar Rai V (2015) Rapid biosynthesis of gold nanoparticles by *Staphylococcus epidermidis*: its characterization and catalytic activity. Materials Letters DOI: 10.1016/j.matlet.2015.01.151 (IF: 2.437) (Elsevier)
38. Govindappa M, Shruthi B, Sahana N Murthy, Shwetha S, Akshatha R V, Channabasavai and Ravishankar Rai V (2015) Determination of capsaicinoids from endophytic fungi (*Aspergillus niger*, *Alternaria* sp. and *Penicillium* sp.) of *Capsicum annuum* using LC. Plant Science Feed. 5: 21-27. Feed, 2015; 5 (2): 21-27
39. Srinath B S and Ravishankar Rai V (2014) Biosynthesis of highly monodispersed, spherical gold nanoparticles of size 4-10 nm from spent cultures of *Klebsiella pneumonia*. 3 Biotech, 1-6. (DOI 10.1007/s13205-014-0265-2). (Springer)

40. Jamuna Bai A, Ravishankar Rai V. (2014). Quorum sensing inhibitory and anti-biofilm activity of essential oils and their in vivo efficacy in food systems. Food Biotechnology. 28(3) 269-292. (IF: 0.814) (Taylor and Francis)
41. Pradeepa Vasudeva Samaga, Vittal Ravishankar Rai and Kuriya Madav Lokanatha Rai (2014). Production of an antimicrobial cytochalasan by an endophytic *Chaetomium globosum* HYML55 from *Hypericum mysorense* and its RNA secondary structure analysis. Chemistry and Ecology 30(6). 566-578. (IF = 1.3) (Taylor and Francis)
42. Pampa K.J. Lokanath NK, Girish TU, Kunishima N. Ravishankar Rai V (2014) Crystal structures of product-bound complex of UDP-*N*-acetyl-D-mannosamine dehydrogenase from *Pyrococcus horikoshii* OT3. Biochemical and Biophysical Research Communications, 453. 662–667. (IF: 2.371) (Elsevier)
43. Pampa K J , Neratur K. Lokanath, Naoki Kunishima and Ravishankar Rai V (2014). The first crystal structure of NAD-dependent3-dehydro-2-deoxy-D-gluconate dehydrogenase from *Thermus thermophilus* HB8. Acta Crystallographica Section D: Biological Crystallography. D70, 994–1004. (IF: 2.512)
44. M. Govindappa, V. Ravishankar Rai and S. Lokesh (2014) Induction of resistance against *Cercospora* leaf spot in safflower by seed treatment with plant growth-promoting rhizobacteria. Archives of Phytopathology and Plant Protection: 47, 2479-2492. (Taylor and Francis)(IF =0.2)
45. Kavitha Keshava Navada and V Ravishankar Rai (2014). Ethnomedicinal value of *Pterocarpus santalinus* (Linn. f.), a Fabaceae member: A short review. Oriental Pharmacy and Experimental Medicine. 14: 313- 317. (Springer)
46. Kangkana Banerjee and V. Ravishankar Rai (2014) Food Nanotechnology the New Era for Food Sector and Its Bottleneck. Green Science and Technology. 2, 1-9.
47. Jamuna Bai A, Ravishankar Rai V (2014). Quorum sensing regulation and inhibition of exoenzyme production and biofilm formation in the food spoilage bacteria *Pseudomonas psychrophila* PSPF19. Food Biotechnology. 28:293–308. (IF: 0.814) (Taylor and Francis)
48. Rajesh PS, Pradeepa V Samaga, Lokanatha Rai KM and Ravishankar Rai V (2014) *In Vitro* biological activity of Aromadendrin-4'-methyl ether isolated from root extract of *Ventilago madraspatana* Gaertn with relevance to anticandidal activity. Natural Product Research (DOI: 10.1080/14786419.2014.968152) (IF: 0.919) (Taylor and Francis)
49. Jamuna Bai A, Ravishankar Rai V (2014). Attachment and biofilm formation by *Pseudomonas fluorescens* PSD4 isolated from dairy processing lines. Food Science and Biotechnology 23(6): 1903-1910. (IF: 0.699) (Springer)
50. Kiana Alaswand Zaraswand and V. Ravishankar Rai (2014). Microorganisms: Induction and Inhibition of Corrosion in Metals. International Journal of Biodeterioration & Biodegradation. 87:66–74. (IF: 2.429) (Elsevier)

51. T.S. Avinash and Ravishankar V. Rai (2013) Biocontrol potential of plant growth promoting Rhizobacteria against Fusarium wilt disease of Cucurbit. ESci J. Plant Pathol. 2. 155-161.
52. Rajesh P.S. and Ravishankar Rai V. (2013). Quorum quenching activity in cell-free lysate of Endophytic Bacteria isolated from *Pterocarpus santalinus* Linn., and its effect on quorum sensing regulated biofilm in *Pseudomonas aeruginosa* PAO1. Microbiological Research. 169(7-8):561-569. (IF: 2.561) (Elsevier)
53. T.S. Avinash and Ravishankar V. Rai (2013) Identification of diverse fungi related with selected Cucurbitaceae Vegetables. Journal of Agricultural Technology.9: 1837-1848.
54. K. Namratha, K. Byrappa, J. Bai, V. Ravishankar Rai, D. Ehrentraut, I. A. Ibrahim, M. Yoshimura (2013) Antimicrobial activity of silver doped ZnO designer nanoparticles. Journal of Biomaterials and Tissue Engineering. 3:1-6.
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Conference/Seminar organized

- Sir M. Visveswaraya 150th Birth Anniversary Commemorative one day symposium on “Microbial Energy,” September 15, 2010.
- Coordinator-Science Communicator Meet 103rd Indian Science Congress, January 3rd -7th, 2016, University of Mysore, Mysore India.
- Organizing Chairman, International Conference in Nanomaterials and their Applications, 1-2 March, 2018, University of Mysore, Mysore India.
- Sectional President for New Biology Section in 105th Indian Science Congress, 16-20 March, 2018, Manipur Central University, Imphal, Manipur, India.

Conference/Seminar Chaired / Co-Chaired:

- National trends in plant disease and management. at Department of Studies in Applied Botany Kuvempu University, Shimoga, 2001
- National Seminar on New Frontiers in Plant Pathology organized by Indian Society of Mycology and Plant Pathology & Dept. of Applied Botany and Biotechnology, Kuvempu University, Shimoga, 2006.
- Conservation, Improvement, Cultivation and Management of Sandal (*Santalum album* L.) at Institute of Wood Science and Technology, Bangalore, 2007
- National Conference on Plant Biodiversity and Bioprospecting at Departmnet of studies in Botany, Mysore, 2009

- Plenary speaker in 20th Scientific Conference of the Microscopy Society of Malaysia and 21st Annual General Meeting at Kuala Lumpur , Malaysia, 2011
- 12th International Congress of Ethnopharmacology at International Society for Ethnopharmacology and Jadavpur University, Kolkata, 2012.
- National Conference on Biotechnology and Society – 2012 at Kuvempu University, Shimoga, 2012
- 7 International Food Convention (IFCON) th NSURE – HEALTHY FOODS Organized by Association of Food Scientists & Technologists (India) held on 18 - 21 December 2013 at CFTRI, Mysore, India
- International Symposium on Chemical Biology-Drug Discovery on 9th and 10th January ,2014 held in the University of Mysore
- International Symposium on Chemical biology approaches to Metabiomics, Chemical genomics and epigenomics and second annual meeting of chemical Biology Society of India February 18th & 19th 2015, University of Mysore.
- Key note speaker in International Conference on Biosciences 2016 on 'Advancing Biodiversity for sustainable food security held Udayan University in Bali in July 26 - 27, 2016.

Conference/Seminar paper presented:

1. Sanjaya, H. S. Ananthapadmanabha and Ravishankar Rai V (1997). In vitro shoot multiplication from the mature tree of Santalum album L. International Seminar ; Institute of food Scioence and Technology and Karnataka State Forest Dept., Bangalore. Pp 45
2. Sanjaya, H. S. Ananthapadmanabha and Ravishankar Rai V (1997). In vitro and in vivo micrografting of *Santalum album* L shoot tips. International Seminar; Institute of food Scioence and Technology and Karnataka State Forest Dept., Bangalore. Pp 60
3. Presented a paper National symposium on Seed Science and technology, at university of Mysore (1999)
4. Ravishankar Rai V. and Thoyajaksha (2001) in vitro propagation of rare plants of Western Ghats of India. Golden jubilee symposium; biotechnological innovation in conservation and analysis of plant diversity. Pp 53.
5. Sanjaya, T.S. Rathore and V. Ravishankar Rai. (2001). In vitro cloning of Indian sandal (Santalum album L.) – a highly priced, over exploited tree species. Golden jubilee symposium; biotechnological innovation in conservation and analysis of plant diversity. Pp 63.
6. T. Mamatha and Ravishankar Rai V. (2002). Leaf blight nursery disease of *Terminalia catapa* Linn. caused by Fusarium solani and its management in vitro. Asian Congress of Mycology and Plant pathology, Mysore. Pp 262.
7. S. Anand kumrar, S. Lokesh and Ravishankar Rai (2002). Efficacy of different seed treatment on seed microflora and seedling quality of Okra (Ablemoschus esculentus (L.)Monech). Asian Congress of Mycology and Plant pathology, Mysore. Pp 230.
8. Govindappa M. and Ravishankar Rai (2002). Management of Fusarium oxysporum F. sp. Carthami, a wilt causing seed borne pathogen of Safflower using fungicides, biocontrol agents, formulations and plant extracts in green house conditions. Asian Congress of Mycology and Plant pathology, Mysore. Pp 229.

9. Ravishankar Rai V. and T. Mamatha (2003) Seedling diseases of some important forest trees In: Proceedings of IUFRO Meeting on Diseases and Insects in Forest Nurseries (Ed:Lilja. J R Sutherland, M Poteri and C Mohanan) Finnish Forest Research Institute, Page 51-63
10. Thoyajaksha and V.Ravishankar Rai, (2004). In vitro multiplication of *Amomum microstephanum* Baker an endangerd species in Proceedings of the National Seminar on Emerging Trends in Applied Botany, Seed Science and Technology, DOS in Applied Botany, Univeristy of Mysore, Mysore. Pp 35.
11. M.Govindappa and V.Ravishankar Rai, (2004) Alternation of peroxidase, PAL and catalase enzymes of safflower plants as induced by chemicals, biocontrol agents and plant extracts against Macrophomina root rot, in Proceedings of the National Seminar on Emerging Trends in Applied Botany, Seed Science and Technology, DOS in Applied Botany, Univeristy of Mysore, Mysore. Pp 52.
12. Mashooda Beghum, V.Ravishankar Rai, , S. Lokesh, and H. Shekar Shetty (2004). Synergistic effect of fungicides on the incidence of seed mycoflora of Okra, In Proceedings of the National Seminar on Emerging Trends in Applied Botany, Seed Science and Technology.
13. B.G . Bharath, S. Lokesh, V. Ravishankar Rai and H. Shekar Shetty (2004) Seed-borne fungal diseases of watermelon and their management, In Proceedings of the National Seminar on Emerging Trends in Applied Botany, Seed Science and Technology, DOS in Applied Botany, Univeristy of Mysore, Mysore.
14. V.Ravishankar Rai, Thoyajaksha and M.Chandrika (2004). Reintroduction of rare micropropagated plants to wild and their field evaluation. In Proceedings of the National Seminar on Emerging Trends in Applied Botany, Seed Science and Technology, DOS in Applied Botany, University of Mysore, Mysore. Pp 34.
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16. K.Harish kumar and V.Ravishankar Rai, (2004). In vitro studies on medicinal forest tree Nothapodytes foetida. In Proceedings of the National Seminar on Emerging Trends in Applied Botany, Seed Science and Technology, DOS in Applied Botany, Univeristy of Mysore, Mysore. Pp. 32.
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19. Rai V. R. (2004). Ex-situ conservation of threatened medicinal forest trees of Western Ghats of India. Biology in Asia International Conference 2004., Singapore. Pp 62.
20. T.Mamatha and V.Ravishankar Rai, (2004). Seed mycoflora, biochemical and physicochemical changes in seeds of forest tree species during storage. In Proceedings of the National Seminar on Emerging Trends in Applied Botany, Seed Science and Technology, Pp. 85

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24. Ravishankar Rai V. (2006) Ex-situ conservation of rare plants of Western Ghats. National Seminar on Wildlife biodiversity conservation, Pondicherry. Pp 5.
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35. Ravishankar Rai V. and Jamuna Bai A. (2011). Studying Quorum Sensing Regulated Biofilm Formation using confocal microscopy. In: 20th Scientific Conference of Microscopy Society of Malaysia & General Meeting, Negeri Sembilan, Malaysia.
36. Pradeepa V Samaga and Ravishankar Rai V (2012). Diversity and Bioactivity of Endophytic Fungi from *Nothapodyte foetida* (wt) Sleumer and *Hypericum mysorense*

Heyne. In: Mycology and Plant pathology: Biotechnological approaches ICMPB 2012. Banaras Hindu University, Varanasi.

37. Avinash T.S. and Ravishankar Rai. V., (2012) Antifungal activity of plant growth promoting rhizobacteria against *Fusarium oxysporum* and *Phoma sp*. of cucurbitaceae. In: International conference on Mycology and Plant Pathology: Biotechnological Approaches (ICMPB) organized by Center of Advanced Study in Botany, Banaras Hindu University, Varanasi.
38. Jamuna Bai A and Ravishankar Rai V (2012). Inhibition of quorum sensing regulated virulence factor production in *Pseudomonas aeruginosa* by essential oils. In: International Conference on Regulatory Network Architecture in Bacteria, SASTRA University, India.
39. Chaitra Narayan L and Ravishankar Rai V (2012). *In vitro* antioxidant and anti HIV potential of *Amoora rohituka*. In 16th International symposium on herbal and Traditional medicine, Saurashtra University Rajkot, Gujarat.
40. Avinash T.S. and Ravishankar Rai. V. (2012) Antagonist activity of plant growth promoting rhizobacteria against *F. oxysporum* of cucurbitaceae. In: International conference on Exploration of Biotechnology by Student Scholars and Researchers -2012 organized by Department of Biotechnology, SIET, Tumkur, India.

Chairman/Member of Authority/Committee etc

- Member, Board of Studies in Applied Botany, Mysore, 2001-2004
- Member, Board of Examination in Plant science, Calicut, 2001-2003
- Member, Board of Examiner, Applied Botany, Mysore, 2004-2007
- Member, Board of Studies in Applied Botany, Mysore, 2004-2007
- Member, Board of Studies in Biotechnology, Mysore, 2004-2007
- Member, Board of Examination in Plant science, Calicut, 2004-2005
- Chairman, Board of Examination in Biotechnology (UG),Mysore, 2005-2006
- Chairman, Board of Examination in Biotechnology (PG), Mysore, 2005-2006
- Member, Board of Examination in Biotechnology (PG), Tumkur, 2005-2008
- Member, Board of Examination (PG), Biotechnology, JSS College, Mysore, 2005-2009
- Chairman, Board of Examination in M. Phil. (Seed technology), Mysore, 2006-2007
- Member, Board of Examination in Biotechnology, Mysore, 2006-2007
- Coordinator, Department of Studies in Microbiology, 2007-08
- Chairman, Dept of Studies in Microbiology, 2008-11
- Chairman, BOS in Microbiology, University of Mysore 2007-10
- Member, BOS in Biochemistry, University of Mysore 2007-10
- Member, BOS in Genetics, University of Mysore 2007-10
- Member, BOS in Botany, University of Mysore, JSS Women's College, Mysore, 2007-11
- Member, BOS in Microbiology, Yuvaraja College, Mysore 2007-11
- Chairman, Board of Examination in Microbiology, Mysore, 2009-2010
- Member, BOS in Microbiology, Gulberga University, 2010-12
- Member, BOS in Microbiology, Pondicherry University, 2010-12
- Chairman, BOS in Microbiology, Bellary University, 2010-11
- Chairman, BOE in Biotechnology , Tumkur University, 2009-12

- Coordinator, DST-FIST Programme, Department of Studies in Microbiology, University of Mysore, 2010-11
- Life Member, Indian science Congress Association
- Life member, Association of Microbiology of India.
- Member, Biosafety Committee, Coffee Board,Mysore 2010-11
- Expert Member, Equipment Purchase Committee, Anthropological Survey, India, Mysore(2011-12)
- Chairman, Board of Studies in Microbiology, Vijayanagar Sri Krishnadevaray, University, Bellary
- Member, BOS in Zoology, University of Mysore, 2010-13
- Member, BOS in Applied Botany, University of Mysore, 2010-13
- Member , BOE M Phil Microbiology Examination, Gulberga University (2010-12)
- Member – BOE Ph.D/M.Phil Davangere University (2013-14)
- Member- Institutional Safety Committee , University of Mysore(IBSC)(2013-14)
- Member, BOS in Material Sciences, University of Mysore 2012-15
- Member , BOS in Clinical Research & Clinical Data Management (2014-15)
- Member- Institutional Biosafety Committee Plant Biotechnology Division , Coffee Board Mysore (2012-16)
- Chairman , BOS in Microbiology University of Mysore 2015-2017
- Chairman , BOS in Clinical Research & Clinical Data Management (2015-16)
- Member – Board of Examination Materials Science (M. Tech) University of Mysore, 2015
- Member- Board of Studies in Bioscience (PG) University of Mysore(2016-19)
- Member- Board of Studies in Genetics(PG) University of Mysore (2015-18)
- Member- Board of Studies in Food Science and Technology (PG) Pondicherry University
  (2015-18)
- Member - Board of Examination in Microbiology(PG) University of Mysore (2014-16)
- Member , Board of Examination , Department of Microbiology, Bangalore university 2015-2016
- Member , Board of Studies in Food Science and Nutrition , St. Philomena College, Mysore 2015-2017
- Member, Reception committee for Centenary Celebration , University of Mysore, 2015-16
- Member, Technical review committee , 103rd Science Congress , University of Mysore, 2016
- Member, Expert committee , Pre selection DST –INSPIRE Faculty Award , University of Mysore, 2015
- Member- Ph. d Doctoral Committee in Microbiology ,Bangalore University (2016)
- Expert Member, Equipment Purchase Committee for Research KR Hospital Mysore , India, Mysore (2015-16)
- Editorial committee Member in (2010 to Present):

  1. In sight Bacteriology
  2. In sight Microbiology
  3. Plant Cell Biotechnology and Molecular Biology Journal

4. Journal of emerging trends in Engineering and Applied Sciences
5. Asian Journal of agriculture Sciences

- Coordinator, UGC Innovative Programme, Department of Studies in Microbiology, 2012 -2017
- Member , Advisory committee , National Service Scheme , University of Mysore, Mysore 2014 -16
- Member , Governing Council , Manasagangotri School Mysore, 2014-16
- Member of Centre with Potential for Excellence in Particular Area (CPEPA) in Processing (UGC) , Characterization and Applications of Advanced Functional Nano Materials, University of Mysore (2012-16)
- Member of University with Potential for Excellence (UGC) , University of Mysore Mysore (2012-16)
- Member, Board of Studies in Applied Botany, Kuvempu University (2014-2015)
- Member, Board of Studies in Material Science, University of Mysore (2011-2014)
- Member, Board of Studies in Applied Botany University of Mysore (2010-2013)
- Member, Board of Studies in Zoology, University of Mysore (2010-2013)
- Member, Board of Studies in Botany, JSS Women's College, Mysore (2007-2011)
- Member, Board of Studies in Microbiology, Pondicherry University (2010-2013)
- Member, Board of Studies in Microbiology, Gulbarga University (2011-2014)
- Member, Board of Studies in Microbiology, Yuvaraja College,Mysore (2010-2012)
- Member- Technical Review Committee 103rd Indian Science Congress , University of Mysore (2016)
- Member, Board of Studies in Microbiology, JSS Colege for Women, Mysore (2016-2017).
- Member, Board of Studies in Biotechnology & Microbiology Dharwad University (2016-2017)
- Member, Board of Studies in Food Science and Technology, Pondicherry University (2016-2019)
- Member, Board of Studies in Biotechnology & Microbiology, Bangalore University (2015-2017)
- Member, Board of Studies in Bioscience, University of Mysore (2016-2019)
- Member, Board of Studies in Genetics , University of Mysore (2015-2018)
- Member , The Research advisory board of JSS Medical College Jagadguru Sri Shivarathreeswara University , Mysore (2017-18)
- Chairman , Board of Studies in Microbiology, Tumkur University, Tumkur (2017-19)
- Member , Board of Studies in Biotechnology , Tumkur University, Tumkur (2017-19)
- Member, Board of Studies in Microbiology, Gulbarga University, Gulbarga (2017-19)

Any other Information

Abroad Visits

1. **Italy:** Presented a Paper in "8th International Congress of Plant Tissue and Cell Culture held at Firenze, Italy. Funded by Department of Science and Technology, Govt. of India (1994)

2. **Australia:** Visiting Fellow at School of Biological Sciences, Perth, W. Australia, Funded by UNESCO Biotechnology Action Council Programme (1996)
3. **Singapore:** Visited National University of Singapore UNESCO, Biotechnology Action Council Programme (1996)
   Presented a paper in Biology in Asia International conference, National Institute of Education, Nanyang Technological University Singapore Funded by DST, New Delhi (2004)
4. **Israel:** Presented a paper in 9th International Congress on Plant Tissue and Cell Culture held at Jerusalem, under Indo-Israel Culture Exchange Programme, UGC, New Delhi (1998)
5. **USA:** Worked as Visiting Fellow in the Department of Molecular Biology and Microbiology, University of Central Florida, Orlando, DBT Overseas Fellowship(2008)

   Worked as Visiting Fellow Department of Biology, Virginia University, DBT Overseas Fellowship (2008)
6. **Taiwan:** Presented a paper on "Physicochemical and biochemical changes in tree seeds during storage. In. IUFRO Tree seed symposium: Recent advances in seed research and *ex-situ* conservation held at Taiwan Forestry Research Institute, Taipei, Taiwan, Republic of China, 2010.

   Invited by Agriculture Biotechnology Research Institute, Academia Sinica, Taipei, Taiwan (2010)
7. **Nepal:** Presented a paper on *"Ex*- situ conservation of forest biodiversity for sustainable development". In. "Biodiversity, Livelihood and Climate Change in the Himalayas, ICBLCC-2010", held at Kathmandu, Nepal held on December, 2010.
8. **Hungary:** Indo-Hungarian Educational Exchange Programme May- June, 2011
9. **Malaysia:** Plenary Speaker in "Studying Quorum Sensing Regulated Biofilm Formation using Confocal Microscopy." in 20th Scientific Conference of the Microscopy Society of Malaysia and 21st Annual General Meeting, Malaysia. December, 2011. Visited Malayan University on 29th July 2016.
10. **Canada :** Attended 2nd International Festival of Science, Technology, Engineering and Mathematics (STEM fest) , 27th September to 3rd October 2015, Saskatoon
11. **Turkey:** Visited Yıldız Technical University Chemical and Metallurgical Engineering Istanbul under Indian National Science Academy under International Scientific Collaboration and bilateral Exchange program 22.11. 2015 to 30. 11.2015
12. **Indonesia**: Key note speaker in the International Conference on Biosciences 2016 on 'Advancing Biodiversity for sustainable food security held Udayan University in Bali in July 26 - 27, 2016.
13. **UK**: Visited Cardiff University under Incoming Fellowship from 15th November 2017 to 29th November 2017.
14. **Mauritius:** visited Centre for Biomedical and Biomaterials (CBBR) and Mauritius Research Council. Delivered talk at Department of Biological Science, University of Mauritius from 29 May to 2nd June 2018.