

Dr. R. VIJAYAKUMAR



Assistant Professor
Department of Biology
College of Science, Zulfi
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Research Interests:

- Biocides Resistant mechanisms of clinical and environmental organisms
- Endotoxin research

Language Skills

Tamil, English

Qualification (Career and University Education)

1997 - 2000	B. Sc. Degree (Industrial Microbiology)	Madurai Kamaraj University, India
2000 - 2002	M.Sc. Degree (Microbiology)	Madurai Kamaraj University, India
2001 - 2002	Diploma (Industrial Pollution & Control)	Annamalai University, India
2009 - 2013	Ph.D Degree (Microbiology)	Bharathidasan University, India

Career

2002- 2008 Medical Microbiologist , Aravind Eye Hospitals, Madurai, India

2014 -Now Assistant Professor, College of Science Zulfi, Majmaah University, Saudi Arabia

Publications (Books)

1. Sandle, T. **Vijayakumar, R.** (2014). Cleanroom Microbiology, Davis Healthcare International Publishing, LLC., PDA: Bethesda, MD. United States of America (ISBN Number: 1933722843) <https://store.pda.org/ProductCatalog/Product.aspx?ID=2474>
2. Lalitha, P., **Vijayakumar, R.**, Prajna, N.V., Srinivasan, M. (2008). Atlas of Fungal Corneal ulcer – Clinical features & Laboratory Identification Methods, Jaypee Brothers Medical Publishers (Pvt) Ltd., New Delhi, India. Pages 160 (ISBN-10: 9350908433) http://www.jaypeebrothers.com/pgDetails.aspx?book_id=9788184483659

Publications (Research Articles)

1. Menakha M, Vinithra G, Sangeetha M, Al- Aboody M. S, **Vijayakumar R.** Isolation and Identification of Potential Ligand Molecules from Glycyrrhiza glabra against EGFR by Molecular Docking . Biosc.Biotech.Res.Comm. 2020;13(1). <https://bit.ly/2uxeZei> (**ISI- ESCI**)
2. Thangavel M, Chandramohan V, Shankaraiah LH, Jayaraj RL, Poomani K, Magudeeswaran S, Govindasamy H, **Vijayakumar R**, Rangasamy B, Dharmar M, Namasivayam E. Design and Molecular dynamic Investigations of 7,8-Dihydroxyflavone Derivatives as Potential Neuroprotective Agents

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- Against Alpha-synuclein. *Scientific Reports*. 2020 Jan 17;10(1):599. doi: 10.1038/s41598-020-57417-9. **(Impact Factor 4.5) Q1**
3. **Vijayakumar**, R., Alfaiz, F., Saleh Al-Aboody, M., Sangeetha, M., & Menakha, M. (2020). Computational Design of New Analogues from Lyngbyastatin-2 against Epidermal Growth Factor Receptor (EGFR) through Molecular Docking. *Journal of Pharmaceutical Research International*, 31(6), 1-10. <https://doi.org/10.9734/jpri/2019/v31i630382> **(ISI- ESCI)**
 4. S Bhavaniramy, S Vishnupriya, MS Al-Aboody, R **Vijayakumar**, Baskaran D. Role of essential oils in food safety: Antimicrobial and antioxidant applications, *Grain & Oil Science and Technology*, Volume 2, Issue 2, June 2019, Pages 49-55. **[Scopus]**
 5. S Bhavaniramy, R Vanajothi, S Vishnupriya, MS Al-Aboody, **R Vijayakumar**, D Baskaran. Computational characterization of deleterious SNPs in Toll-like receptor gene that potentially cause mastitis in dairy cattle. *Biocatalysis and Agricultural Biotechnology* 19, 101151 Volume 19, **May 2019 (ISI- ESCI)**
 6. S Bhavaniramy, V Ramar, S Vishnupriya, K Premkumar, MS Al-Aboody, **Vijayakumar**, D. Baskaran. Enzyme immobilization on nanomaterials for biosensor and biocatalyst in food and biomedical industry. *Current pharmaceutical design* . 2019, **Jul 12**. doi: **10.2174/1381612825666190712181403 (Impact Factor 2.4)**
 4. **Vijayakumar** R, Al-Aboody MS, Detection of fungal contamination by 28S rRNA gene PCR in Ophthalmic viscoelastics , *Chimica Oggi – Chemistry Today*, 2019,37(2), 66-68. **(ISI-Impact factor 0.4)**
 5. **Vijayakumar** R, Sandle T. A review on biocides reduced susceptibility due to plasmid-borne antiseptic resistant genes – Special notes on pharmaceutical environmental isolates, *Journal of applied microbiology*, 2019 Apr;126(4):1011-1022. **(Impact Factor 2.6)**
 6. Manimaran D, Ghanendra S, Sridhar M, Kaliyaperumal J, Muniyaraj S, Mohrankumar T, **Vijayakumar** R, Manigandan K, Balakrishnan R, Elangovan N. Molecular insights of newly identified potential peptide inhibitors of hypoxia inducible factor 1 α causing breast cancer, *Journal of Molecular Structure*, Volume 1117, 558-563, 2019. (Impact Factor 1.7) <https://doi.org/10.1016/j.molstruc.2018.09.072>
 7. **Vijayakumar** R. Isolation, identification of pathogenic Acanthamoeba from drinking and recreational water sources in Saudi Arabia. *J Adv Vet Anim Res*, 5(4): 439-444, 2018 **(Scopus)**
 8. Menakha M, Sangeetha M, Mani P, Al-Aboody MS, **Vijayakumar** R. In silico prediction of drug molecule from Ipomoea sepiaria against Type 2 Diabetes. *Prog Med Sci*. 2018; 3(1): 9-14.
 9. **Vijayakumar** R, Sandle T, Al-Aboody MS, AlFonaisan MK, Alturaiki W, Mickymaray S, Premanathan M, Alsagaby SA. Distribution of biocide resistant genes and biocides susceptibility in multidrug-resistant *Klebsiella pneumoniae*, *Pseudomonas aeruginosa* and *Acinetobacter baumannii* - A first report from the Kingdom of Saudi Arabia. *J Infect Public Health*. 2018 Jun 12. pii: S1876-0341(18)30079-0. doi:10.1016/j.jiph.2018.05.011. [Epub ahead of print] **(Impact Factor 2.11)**
 10. Suresh M, Alturaiki W, Al-Aboody M.S, Premanathan M, **Vijayakumar** R, Suliman A. Alsagaby, Umamageshwari K, Abdulla A. Alarfajj. Antibacterial efficacy of bacteriocin produced by marine *Bacillus subtilis* against clinically important Extended Spectrum Beta-Lactamase strains and Methicillin-Resistant *Staphylococcus aureus*. (2018) *International Journal of Medical Research and Health sciences*, 7(2):75-83.
 11. Mani P., Menakha S., Sangeetha M., Esther M., **Vijayakumar** R. Molecular docking of Bioactive Compounds from *Syzygium aqueum* against Type 2 Diabetes susceptibility gene TCF7L2. (2018). *International Journal of Pharmaceutics and Drug Analysis*, 6 (2); 271-278
 12. Sangeetha M, Menakha S, Mani P, Esther M, **Vijayakumar** R. Comparative studies of anti-bacterial activity in *Aloe vera* and *Achyranthes aspera* against wound pathogens (2018). *International Journal of Pharmaceutics and Drug Analysis*, 6 (2); 286 – 289
 13. Shakila P,Sangeetha M, Menakha S, Mani P, Esther M, **Vijayakumar** R. Institutional Waste Water Treatment Using Root- Zone Method (2018). *International Journal of Pharmaceutics and Drug Analysis*, 6 (2); 312 – 319
 14. **Vijayakumar**,R., Aboody, M. S. A., Turaiki, W. A., Alsagaby, S. A. & Sandle, T. (2017) A study of airborne fungal allergens in sandstorm dust in Al-Zulfi, Central region of Saudi Arabia. *Journal of environmental and occupational science* 2017; 6(1): 27-33.
 15. **Vijayakumar**,R., Aboody, M. S. Turaiki, W. A., & Sandle, T. (2017) Review on Endotoxin mediated
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- toxic anterior segment syndrome (TASS) – Outbreaks, Product recall and testing limits, *European Journal of Parenteral & Pharmaceutical Sciences*, 22 (1), 20-25.
16. Mani, P., Menakha, M., Al Aboody, M.S., Alturaiki, W., **Vijayakumar**, R. (2016) Molecular Docking of bioactive compounds from *Piper* Plants against Secreted Aspartyl Proteinase of *Candida albicans* causing Oral Candidiasis. *International Journal of Pharmaceutical and Clinical Research* 8 (10): 1380 – 1389.
 17. **Vijayakumar**,R., Aboody, M. S. A., AlFonaisan, M. K., Turaiki, W. A., Mickymaray, S., Mariappan, P., Alsagaby, S. A. & Sandle, T. (2016) Determination of Minimum inhibitory concentrations of Common Biocides to Multidrug-Resistant Gram-negative bacteria. *Appl Med Res*, 2 (3), 56-62.
 18. **Vijayakumar**,R., Sandle.T,(2016) Bacterial Endotoxin Contamination and Testing limits in Ophthalmics. *European Pharmaceutical Review*, 21(4), 16 – 18. (Indexed in Scopus)
 19. **Vijayakumar**,R., Saleh Al Aboody, M., Meshal K. Alfonaisan, Sandle.T,(2016) *In vitro* susceptibility of multidrug resistant *Pseudomonas aeruginosa* clinical isolates to common biocides. *International Journal of Research in Pharmaceutical sciences*, 7(1), 110 – 116. (Indexed in Scopus)
 20. **Vijayakumar**,R., Saleh Al Aboody, M.,Sandle.T,(2016) A review of melanized (black) fungal contamination in pharmaceutical products - incidence, drug recall and control measures. *Journal of Applied Microbiology*, 2016 Apr;120(4):831-41. (Impact Factor 2.38)
 21. Palanisamy M, Venkatapathy N, **Vijayakumar** R, Shobana CS. (2015). Keratomycosis Caused By *Graphium eumorphum* (*Graphium* State of *Scedosporium apiospermum*). *J Clin Diagn Res*. 2015 Apr;9(4):DD03-4. doi: 10.7860/JCDR/2015/12089.5802. Epub 2015 Apr 1.
 22. Sandle.T, **Vijayakumar**,R., Saleh Al Aboody, M., Saravanakumar,S. *In vitro* fungicidal activity of biocides against pharmaceutical environmental fungal isolates: a response to the Letter of Rout and Humphreys (2015) *Journal of Applied Microbiology*, 118: 779–780. 11 FEB 2015 | DOI: 10.1111/jam.12755 (Impact Factor 2.38)
 23. Sandle, T., **Vijayakumar**, R., Saleh Al Aboody, M. and Saravanakumar, S. (2014), *In vitro* fungicidal activity of biocides against pharmaceutical environmental fungal isolates. *Journal of Applied Microbiology*, 117 (5): 1267–1273. doi: 10.1111/jam.12628. (Impact Factor 2.38)
 24. **Vijayakumar**,R., Lalitha, P. (2013). Toxic Anterior Segment Syndrome : Review on Incidence, Etiology and Recommendations for Prevention, *Journal of TNOA*, 52 (2): 52 – 61.
 25. Kannan,V.V.,**Vijayakumar**,R.,Senthilkumar,R., Srinivasan,T., Kubota,S., Yamaji, N., Abraham, S.J.K., Efficacy of an Alcohol- Free, Citrate based agent 'Clinister' as a Surface Disinfectant against common bacterial and fungal contaminants. (2013). *Current Trends in Biotechnology and Pharmacy*, 7(2): 592 – 596.
 26. **Vijayakumar**, R., Kannan, V.V., Sandle, T., and Manoharan, C. (2012). In vitro Antifungal Efficacy of Biguanides and Quaternary Ammonium Compounds against Cleanroom Fungal Isolates, *PDA Journal of Pharmaceutical Science and Technology*, 66(3): 236-242.
 27. **Vijayakumar**, R., Sandle, T. and Manoharan, C. (2012). “A review of fungal contamination in pharmaceutical products and phenotypic identification of contaminants by conventional methods”, *European Journal of Parenteral and Pharmaceutical Sciences*, 17 (1): 4 – 19.
 28. **Vijayakumar**,R.,Kannan,V.V., Manoharan,C. (2011). Minimum Inhibitory Concentration Determination of Chlorhexidine gluconate against Pharmaceutical Clean Room Fungal Isolates. *Asian Journal of Pharmaceutical Health Science*. Oct – Dec, 4 (1): 167 – 170.
 29. **Vijayakumar**,R., Kannan,V.V., Manoharan,C., (2011). Molecular Diagnosis of *Pseudomonas aeruginosa* contamination in ophthalmic viscosurgical devices. *International Journal of Research in Pharmaceutical sciences*, 2(4), 579 – 584.
 30. Day,S., Lalitha,P., Haug,S., Fothergill,A.W., Cevallos,V., **Vijayakumar**,R., Prajna,N.V., Acharya, N.R., Mcleod,S.D., Lietman, T.M. (2009). Activity of antibiotics against *Fusarium* and *Aspergillus*. *British Journal of Ophthalmology*; 93 (1): 116 – 119. (Impact Factor 2.7)
 31. Lalitha,P., **Vijayakumar**,R., Prajna,N.V., Fothergil, A.W. (2008). In Vitro Natamycin Susceptibility of Ocular Isolates of *Fusarium* and *Aspergillus* Species: Comparison of Commercially Formulated Natamycin Eye Drops to Pharmaceutical-Grade Powder. *Journal of Clinical Microbiology*,46 (10): 3477-3478. (Impact Factor 4.1)
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32. Lalitha,P., Rathinam,S.,Banushree,K., Maheshkumar,S., **Vijayakumar,R.**, Sathe,P. (2007). Ocular Involvement Associated with an Epidemic Outbreak of Chikungunya Infection. *American Journal of Ophthalmology*.2007, 144 (4): 552-556. (Impact Factor 4.2)
33. Jeyakumar,W., Thiruvalluvan,M., **Vijayakumar,R.**, Chandrasekar,C. (2003). Effect of Phytoconstituents in Plasmid associated Multi Drug Resistant Strains of induced sputum in HIV/AIDS patients. *Indian Journal of Sexually Transmitted Diseases*. 24 (2) 74-78.

Awards

1. Winner of First prize of Platinum – Scientific Excellence Award 2016 given by College of Science Zulfi, Majmaah University, Kingdom of Saudi Arabia (4th May 2016)
2. Distinguished Editor/ Author 2016 for Cleanroom Microbiology Book– Award given by Parenteral Drug Association, DHI Publishers, United States of America (March.2016)
3. Winner of Georges Sykes Memorial Award 2012 for best review article in European Journal for Parenteral and Pharmaceutical Sciences.

Teaching Experience

Course name	Course code	Zulfi College of Science	Majmaah University
Clinical Mycology	MDL354		
Biology (Prep. Year)	PBIO 126		
Medical Terminology	CAMS232		
Quality of Healthcare	CAMS 234	College of Science, Zulfi	Majmaah University
Research and Seminar	MDL 475		
Clinical Parasitology			
General Biology	BIOL 101		
Plant Taxonomy	BIOL 222		
Plant Physiology	BIOL 223		
Mycology	BIOL 333		
Plant Ecology	BIOL 334		

Research Projects

Funding Agency	Project Ref. No	Title
<i>Deanship of Scientific Research, Majmaah University, Kingdom of Saudi Arabia</i>	HSRC/10 2014 – 15	Microbiological efficacy of biocides on multidrug-resistant clinical pathogens – A Control strategy for reduction of nosocomial infections
<i>Deanship of Scientific Research, Majmaah University, Kingdom of Saudi Arabia</i>	Accepted 2015 – 16	A study of airborne fungal allergens in Sandstorm dust in the Zulfi, Saudi Arabia
<i>Deanship of Scientific Research, Majmaah University, Kingdom of Saudi Arabia</i>	Accepted 2016 – 17	Isolation, Identification and Control of Pathogenic Acanthamoeba from Drinking and Recreational Water Sources in Saudi Arabia
<i>Deanship of Scientific Research, Majmaah University, Kingdom of Saudi Arabia</i>	Accepted 2018 – 19	Analysis of endotoxin level in Camels milk samples derived from desert farms and shops in Saudi Arabia

Saudi Arabia

<i>Deanship of Scientific Research, Majmaah University, Kingdom of Saudi Arabia</i>	Accepted 2019-2020	Assessment of Airborne endotoxin in Sandstorm dust and indoor environments in Al-Zulfi City, Saudi Arabia
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Conferences

1. Long-term Stability and Invitro fungal activity of Voriconazole Powder for Eye drops (1%) - Poster presented in 15th Asia Pacific Congress of Clinical Microbiology and Infection (APCCMI) held at Kuala Lumpur, Malaysia (26th to 29th November 2014)
 2. Nested Polymerase Chain Reaction For Mycobacterium tuberculosis DNA Detection in Aqueous and Vitreous of Patients with Ocular Infections – Paper presented in XXVI National Congress of Indian Association of Medical Microbiologists (IAMM) MICROCON 2007 at Mangalore (AP), India. (16th to 18th November 2007)
 3. Comparison of in vitro Susceptibilities of Corneal Nocardia Isolates to Fluroquinolones, Aminoglycosides and Sulphonamides– A 10 years comparative study – Paper presented in XXVI National Congress of Indian Association of Medical Microbiologists (IAMM) MICROCON 2007 at Mangalore (AP), India. (16th to 18th November 2007)
 4. Antibigram of Methicillin Resistant Staphylococcus aureus (MRSA) in Ocular Infections – Poster Presented in 16th Indian Eye Research Group (IERG) conference at Hyderabad (AP), India (July 28 & 29, 2007)
 5. Emerging Multi Drug Resistant of Pseudomonas species from corneal isolates: A 3-year Review – Free paper presented in 54th Tamilnadu Ophthalmic Association conference at JIPMER, Pondicherry UT, India (Aug 11 –13,2006)
 6. Incidence and Laboratory diagnosis of Dematiaceous Keratomycosis in East Coastal Region of India – Presented in VI National Conference of the SIHAM (Society for Indian Hyman and Animal Mycology) at Hyderabad (AP), India. (Jan 17 – 22, 2006)
 7. Antibiotic Sensitivity pattern of Endophthalmitis Isolates – Free paper presented in 53rd Tamilnadu Ophthalmic Association conference at Kodaikanal (TN) India (Aug 13 –15,2005)
 8. Incidence of Mycotic Keratitis in East coastal region of Tamilnadu & Pondicherry- presented in IAMM Tamilnadu & Pondicherry chapter meet at Pondicherry. (Feb 14, 2004)
 9. Microbiologic spectrum of infectious endophthalmitis in tertiary eye care centre – presented in IAMM Tamilnadu & Pondicherry chapter meet at Coimbatore (TN) India (Oct 9,2004)
 10. Aetiological Diagnosis of Microbial Keratitis in East Coastal Pondicherry – Free paper presented in 52nd Tamilnadu Ophthalmic Association conference at Tirunelveli (TN) India (Aug 13 –15,2004)
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Training Experience

1. Seminar on Best Practices & Recommendations in Microbial Monitoring in Pharmaceutical Industry – Merck Millipore, 15th June 2012, Chennai
2. Good Laboratory Practices (GLP) – Schedule L1 Conducted by CII, Bangalore (Dr. Sadasivam Pillai) (27 – 30 July 2011)
3. Invited talk on Molecular Methods in Pharmaceutical Microbiology in CME on Molecular diagnosis (PCR) – Aravind Eye Hospital, Tirunelveli (12 -13 February 2011)
4. CSSD and Infection control – Dr. Nandhini Krishnamoorthy, Laico, Aravind eye hospital (10 – 12 January 2011)
5. Essentials of USP Microbiological Testing - USP Pharmacopeial Training Program, Bangalore (22nd February 2010)
6. Good Manufacturing Practices (GMP) in Pharmaceutical Industry – GK Moorthy (Laico; January 2009)
7. Internal Quality Auditor Training as per ISO 9001 – 2008 by Zandig Knowledge Management Private Limited, Bangalore conducted at LAICO, Madurai (5th & 6th May 2009)
8. Course in Basic Medical Mycology and Identification of Fungal Pathogens – Conducted by

Department of Clinical Microbiology, Christian Medical College, Vellore, Tamilnadu. (October 1st – 4th, 2007)

9. Laboratory Quality Management System and Internal Auditing of Medical Laboratories Training conducted by NABL (National Accreditation Board for Testing and Calibration Laboratories, New Delhi) in RML Mehrotra Pathology Lab, Lucknow (16 – 19 April 2007)
10. CME on Ocular Microbiology under Indian association of Medical Microbiologist Tamilnadu and Pondicherry chapter meet, Madurai (August 5, 2006)
11. Workshop on Recent Techniques & Procedures in Mycology held at Nizams Institute of Medical Science (NIMS) Hyderabad. (January 17- 20, 2006)
12. One week training at Department of Clinical Virology in Christian Medical college (CMC) Vellore, Tamilnadu (November 29 – December 4, 2004)

Practical Skills

Proteomics & Microarray Techniques

- Good experience in protein extraction, quantification -digestion – purification (membrane cut-off, solid phase extraction method)
- Good experience in Mass spectrometry - proteomics run using Q TOF LCMS-MS (Agilent)
- Protein labeling by iTRAQ – Quantitative analysis of protein
- Microarray techniques - total RNA isolation, spike mix preparation, labelling, purification, cDNA quantification, hybridization, microarray slide washing

Pharmaceutical Microbiological QC Tests

- Microbial limit test method development and method validation for raw material, finished goods as per BP, USP, EP, IP and client method.
- Sterility tests, Bacterial endotoxin test, Preservative efficacy test , Antibiotic assay test method development and validation for raw material, finished goods and sterile medical devices as per BP,USP,EP,IP and client method.
- Well knowledge on Process validation, Aseptic filling line validation, Water system validation, Clean room validation
- Environmental monitoring by using settle plates, microbiological air sampler, contact plate and swab.
- Validation study for disinfectants, swab recovery, contact plate recovery, garments recovery
- Validation and calibration for various instruments like Autoclave, incubators, hot air oven, laminar air flow and bio safety hood