Dr. S. Gowrishankar
Assistant Professor

Contact

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Academic Qualifications:

Degree	Year of Passing	Subject	Class	Institution
B.Sc.	April 2007	Microbiology	First class	Kongu College of Arts & Science, Karur – 639 006
M.Sc.	May 2009	Microbiology	First class with Distinction	Bharathidasan University, Tiruchirappalli
Post M.Sc., Diploma	June 2010	Advanced Diploma in Molecular Diagnostics (ADMD)	First class with Distinction	Department of Biotechnology, Alagappa University, Karaikudi
Ph.D.	December 2016	Biotechnology	Highly Recommended	Department of Biotechnology, Alagappa University

Teaching Experience: 4 years 4 months

Since **January 30, 2016**

Research Experience: 9 years 7 months

Since **October 11, 2010**

Additional Academic & Administrative Responsibilities

1. Department level Non-Major Elective (NME) Course, MOOCs, SWAYAM & NAD Coordinator (Since Dec, 2019 to till date).
2. Department level IQAC (Since 2018 to till date) and NIRF Coordinator (Since Oct, 2019 to till date)
3. Department level Village Extension Programme (VEP) Coordinator (Since 2016 to till date) and SWACHH BHARAT Coordinator (Since 2018 to till date)

Areas of Research

- **Molecular Epidemiology**: Molecular characterization of multidrug resistant clinical pathogens, especially MRSA.
- **Antivirulence Therapy -"Pathoblockers"**: An alternative approach to combat AMR.
- Molecular insights into the mode of action of antivirulence agents through **OMICS** approach.
- **Phage Therapy**: Therapeutic characterization of phages against human and aquaculture pathogens.
- **Repurposing of Antifungal Drugs**: success through synergistic combination with antivirulence agents.

Research Supervision / Guidance

Program of Study		Completed	Ongoing
Research	**Ph.D.**	-	02
Project	**PG**	10	-

Publications

International		National		Others
Journals	Conferences	Journals	Conferences	Books / Chapters / Monographs / Manuals
30	24	--	09	03

Research Achievements

- Cumulative and Average Impact Factor : **104.479 (Avg. IF: 3.86)**
- h-index (*As per Google Scholar Citation Index*) : **13**
- i-10 index : **14**
- Total Citations : **463** *(As on 01.06.2020)*
- Scopus Author ID : 55372051100
- Orcid ID : 0000-0001-5728-6837

Funded Research Projects

Ongoing Projects

S. No	Agency	Period		Project Title	Budget (Rs. In lakhs)
		From	To		
1	University Grants Commission (**UGC**), New Delhi	2017	2019	"Deciphering the antivirulence mechanism of marine cyclic dipeptide cyclo(l-leucyl-l-prolyl) against *Listeria monocytogenes* through proteomic approach"	10.00
2	AURF Start-Up Grant	2018	2019	Efficacy evaluation of phytochemical(s) from *Achyranthes aspera* L. (amaranthaceae) against various virulence traits of certain human pathogens	1.00
3	Indian Council of Medical Research (ICMR), New Delhi	2020	2023	Identification of potential drug target(s) in *Streptococcus mutans*: an essential step for developing improved dental care products	19.96

Achievements / Awards

1) 2008	**State Eligibility Test** for Lectureship (**SET**) in Life sciences.
2) 2009	Awarded **Studentship** (Rs. 5000 per month for one year) by the Department of Biotechnology (DBT), Government of India for the Post M.Sc., Advanced Diploma in Molecular Diagnostics Programme (July 2009 to June 2010).
3) 2011-16	University Grants Commission-**Rajiv Gandhi National Fellowship**
4) 2012	**Second prize for poster presentation** in the International Conference on "Regulatory Network Architecture in Bacteria" held during March 9th - 11th, 2012 at Sastra University, Thanjavur, India.
5) 2013	**Best poster and cash award** in the "National Seminar on Microbes in Health, Agriculture and Industry" held during February 27th - March 1st, 2013 at Department of Biotechnology, Alagappa University, Karaikudi, India.
6) 2014	**First prize for oral presentation** in the National Conference on "Bioactive Peptides-Application in Veterinary, Medical and Food Sciences" held during December 18th - 19th, 2014 at Department of Animal Biotechnology, Madras Veterinary College, Chennai, India.
7) 2015	**International Travel Awards** from 1. In**dian Council of Medical Research (ICMR)** 2. **Centre for International Co-operation in Science (CICS)** (To attend the 25th European Congress of Clinical Microbiology and Infectious Diseases held during April 25th -28th, 2015 at Copenhagen, Denmark).
8) 2017	**Start-up Grant** for the newly joined faculties of Basic Sciences by **University Grants Commission**, New Delhi, March-2017.
9) 2019	**Outstanding Researcher Award -2019** by Saveetha Dental College & Hospitals, SIMATS, Chennai at the International Conference "Horizon 2019" *The Epitome of Biomedical Research*, held during 28th February to 1st March 2019.
10) 2019	**Dr. APJ Abdul Kalam Award for Young Scientist Award – 2019** presented by MARINA LABS, Reserach & Development, Chennai.

Events Participated

Conferences / Seminars / Workshops: 09

Other Training Programs

1. **"ZEISS Microscopy Course"** held between 21st and 23rd May, 2015 organized by Carl Zeiss India (Bangalore) Pvt. Ltd. at **IIT Madras**.

2. Training programme on **"Empowering the Changemakers in Biopharma Sector"** organized by KIIT- Technology Business Incubator and BCIL for *National Biopharma Mission*, Department of Biotechnology, *Government of India* at Bhubaneswar during March 3-5, 2020.

Overseas Exposure / Visits

- Visited **Copenhagen, Denmark** and presented poster in the 25th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID 2015) during 25th -28th April, 2015.

Membership in Professional Bodies

1. Life Member : Proteomic Society, India (PSI) (Reg. No. 458)
2. Life Member : Biotech Research Society of India (BRSI) (LM:1672)
3. Life Member : Indian Initiative for Management of Antibiotic Resistance (IIMAR)

Others

- Reviewer for SCI journals such as BMC Microbiology, Probiotics and Antimicrobial Proteins, Current Microbiology, Gene Reports, Journal of Medical Microbiology, Microbial Pathogenesis, Biocatalysis and Agricultural Biotechnology and South African Journal of Botany
- Sequences submitted in
  - GenBank : **42**
  - Multilocus sequence typing (MLST) : **33**

Resource person in varies capacities

1. Invited lecture delivered on the title "**Half a decade journey that links blue, red and white Biotechnology**" at Srimad Andavan Arts and Science College, Tiruchirappali on 21st Feb, 2020.

2. Invited lecture delivered on the title "**Post Translational Modification and Folding of Newly Assembled Polypeptides**" (online session) on 06th May, 2020 organized by Department of Biotechnology, AJK College of Arts and Science, Coimbatore – 641 105

3. Lead a online session as *Lead Moderator* on the title "**How to write an abstract and improve your article**" in a Faculty Development Program- "Gearing up for Research & Research Writing" organized by Department of Biotechnology, School of Bio and Chemical Engineering, Kalasalingam Academy of Research and Education, Krishnankoil on 23rd May, 2020.

Recent Publications

1. Saraswathi, M.S.S.A., Rana, D., Divya, K., **Gowrishankar, S.**, Nagendran, A., 2020. Versatility of hydrophilic and antifouling PVDF ultrafiltration membranes tailored with polyhexanide coated copper oxide nanoparticles. *Polymer Testing* **(In Press)** [Elsevier, Amsterdam] **[Impact Factor: 2.943].**

2. Soumiya, G**., Gowrishankar, S**., Prabhu, MR. 2020. Influence of phosphotungstic acid in sulfonated poly (ether ether ketone)/poly (amide imide) based proton conductive membranes and its impact on the electrochemical studies of microbial fuel cell application. *Ionics* (**In Press**) (DOI: 10.1007/s11581-019-03415-5) [Springer Nature Switzerland AG] [**Impact Factor: 2.289**].

3. Mahomoodally, F.M., Lobine, D., Rengasamy, K.R.R., **Gowrishankar, S.,** Tewari, D., Zengin, G., Kim, D.H.., Sivanesan, I**.** 2019. Marine algae - a potential resource for anti-HSV molecules**.** *Processes* [MDPI AG, Switzerland] 7(12), 887 [**Impact Factor: 1.963**] doi.org/10.3390/pr7120887.

4. FarisaBanu, S., Thamotharan, S., **Gowrishankar, S.**, Pandian, S.K., Nithyanand, P., 2019. Marine bacterial DNase curtails virulence and disrupts biofilms of *Candida albicans* and non-albicans *Candida* species *Biofouling* [Taylor & Francis] 29:1-11 [**Impact Factor: 2.847**]. doi: 10.1080/08927014.2019.1680650

5. Saraswathi, M.S.S.A., Rana, D., Divya, K., **Gowrishankar, S.**, Sakthivel, A., Alwarappan, S., Nagendran, A., 2020. Highly permeable, antifouling and antibacterial poly (ether imide) membranes tailored with poly (hexamethylene biguanide) coated copper oxide nanoparticles. *Materials Chemistry and Physics* (In Press) **[Elsevier, Amsterdam]** 240, 122224 [**Impact Factor:** 2.**781**].

6. Saraswathi, M.S.S.A., Rana, D., Alwarappan, S., **Gowrishankar, S.**, Vijayakumar, P., Nagendran, A., 2019. Polydopamine layered poly (ether imide) ultrafiltration membranes tailored with silver nanoparticles designed for better permeability, selectivity and antifouling. *Journal of Industrial and Engineering Chemistry* (In Press, Available online 14 March 2019) **[Elsevier, Amsterdam]** 76: 141-149**.** doi.org/10.1016/j.jiec.2019.03.014 [**Impact Factor: 4.978**].

7. Rameshkumar, R., Pandian, S., Rathinapriya, P., Selvi, C.T., Satish, L., **Gowrishankar, S.,** Leung, D.W.M., Ramesh, M., 2019. Genetic diversity and phylogenetic relationship of *Nilgirianthus ciliatus* populations using ISSR and RAPD markers: Implications for conservation of an endemic and vulnerable medicinal plant, Biocatalysis and Agricultural Biotechnology. ***Biocatalysis and Agricultural Biotechnology*** **[Elsevier, USA]** 18: 101072. doi: https:// doi.org/10.1016/j.bcab.2019.101072. **[Impact Factor: 0.0].**

8. Rubini, D., FarisaBanu, S., Prabha, S., Vedhahari, B.N., **Gowrishankar, S.,** Pandian, S.K., Wilson, A., Nithyanand, P., 2019. Extracted chitosan disrupts quorum sensing mediated virulence factors in urinary tract infection causing pathogens. ***Pathogens and Disease*** [FEMS, Oxford University Press, USA] 77(1). pii: ftz009. doi: 10.1093/femspd/ftz009 [**Impact Factor: 2.337**].

9. Sri Abirami Saraswathi, A., Rana, D., Alwarappan, S., **Gowrishankar, S**., Kanimozhi, P., Nagendran, A., 2019. Cellulose acetate ultrafiltration membranes customized with bio-inspired polydopamine coating and in situ immobilization of silver nanoparticles. ***New Journal of Chemistry*** [Royal Society of Chemistry, England]. 43, 4216-4225. [**Impact Factor: 3.201**].

10. **Gowrishankar, S***., Pandian, S.K., Balasubramaniam, B., Balamurugan, K., 2018. Quorum quelling efficacy of marine cyclic dipeptide -cyclo(L-leucyl-L-prolyl) against the uropathogen *Serratia marcescens*. ***Food and Chemical Toxicology*** [Elsevier, France] 123, 326-336 [**Impact Factor: 3.977**].

11. Chokpaisarn, J., Y, Kanyatorn., Sanpinit, S., Pandian, S.K., Nandhini, J.R., **Gowrishankar, S.,** Limsuwan, S., Kunworarath, N., Voravuthikunchai, S.P., Chusri, S., 2019. Effects of a traditional Thai polyherbal medicine 'Ya-Samarn-Phlae' as a natural anti-biofilm agent against *Pseudomonas aeruginosa*. ***Microbial Pathogenesis*** [Elsevier, London] 128 (2019): 354 - 362 [**Impact Factor: 2.581**].

12. Rameshkumar, R., Satish, L., Pandian, S., Rathinapriya, P., Rency, P.S., **Gowrishankar, S.,** Pandian, S.K., Leung, W.M.D., 2018. Manikandan Ramesh. Production of squalene with promising antioxidant properties in callus cultures of *Nilgirianthus ciliates*. ***Industrial Crops and Products*** [Elsevier, Netherlands] 126, 357 – 367 **[Impact Factor: 3.849.]**

13. Rengasamy, K.R.R., Khan, H., **Gowrishankar, S.,** Lagoa, R.J.L., Mahomoodally, F.M., Khan, Z., Suroowan, S., Tewari, D., Zengin, G., Hassan, S.T.S., Pandian, S.K., 2018. The role of flavonoids in autoimmune diseases: therapeutic updates. ***Pharmacology and Therapeutics*** [Elsevier, France] 194:107-131. doi: 10.1016/j.pharmthera.2018.09.009. [**Impact Factor: 10.376**].

    ☯Equally Contributed.

14. Hassan, S.T.S., Šudomová, M., Berchová-Bímov, K., **Gowrishankar, S.,** Rengasamy, K.R.R., 2018. Antimycobacterial, enzyme inhibition and molecular interaction studies

of psoromic acid on *Mycobacterium tuberculosis*: Efficacy and safety investigations. ***Journal of Clinical Medicine*** [MDPI AG, Switzerland] 20;7(8). pii: E226. doi: 10.3390/jcm7080226. [**Impact Factor: 5.583**].

15. Fang, J., Chen, Q., He, B., Ca, J., Yao, Y., Xu, S., **Gowrishankar, S.,** Pandian, S.K., 2018. Tanshinone IIA attenuates TNF-α induced PTX3 expression and monocyte adhesion to endothelial cells through the p38/ NF-κB pathway. ***Food and Chemical Toxicology*** [Elsevier, France] 121: 622-630 [**Impact Factor: 3.977**].

16. Rubini, D., FarisaBanu, S., Vellingiri, V., RamyaDevi, D., **Gowrishankar, S.,** Pandian, S.K., Nithyanand, P., 2018. Chitosan extracted from marine biowaste mitigates staphyloxanthin production and biofilms of Methicillin- resistant *Staphylococcus aureus*. ***Food and Chemical Toxicology*** [Elsevier, France] 118:733-744. doi: 10.1016/j.fct.2018.06.017 [**Impact Factor: 3.977**].

17. FarisaBanu, S., Rubini, D., Murugan, R., Vellingiri, V., **Gowrishankar, S**., Pandian, S.K., Nithyanand, P., 2018. Exploring the antivirulent and sea food preservation efficacy of Essential oil combined with DNase on *Vibrio paraholyticusaem*. ***LWT Food Science and Technology*** [Elsevier, France] 95 (2018): 107-115. [**Impact Factor: 3.714**].

18. FarisaBanu, S., Rubini, D., Shanmugavelan, P., Murugan, R., **Gowrishankar, S**., Pandian, S.K., Nithyanand, P., 2018. Effect of patchouli and cinnamon essential oil on biofilm and hyphae formation by *Candida* spp. ***Journal of Medical Mycology*** [Elsevier, France] (2):332-339. [**Impact Factor: 1.606**].

19. Satish, L[☯]., Santhakumari, S[☯]., **Gowrishankar, S[☯]**., Pandian, S.K., Ravi, A.V., Ramesh, M., 2017. Rapid biosynthesized AgNPs from *Gelidiella acerosa* aqueous extract mitigates quorum sensing mediated biofilm formation of *Vibrio* species -An *in vitro* and *in vivo* approach. ***Environmental Science and Pollution Research*** [Germany (Berlin): Springer] 24(35):27254-27268. [**Impact Factor: 2.914**]. DOI: 10.1007/s11356-017-0296-4.

[☯]Equally Contributed.

20. Kannappan, A., **Gowrishankar, S**., Srinivasan, R., Pandian, S.K., and Ravi, A.V., 2017. Antibiofilm activity of *Vetiveria zizanioides* root extract against methicillin-resistant *Staphylococcus aureus*. ***Microbial Pathogenesis*** [Elsevier, London] 110 (2017): 313e324 [**Impact Factor: 2.581**].

21. FarisaBanu, S., Rubini, D., Rakshithaa, S., Sekar, C.K., Wilson, A., **Gowrishankar, S**., Pandian, S.K., and Nithyanand, P., 2017. Antivirulent properties of underexplored Cinnamomum tamala essential oil and its synergistic effects with DNase against *Pseudomonas aeruginosa* biofilms - an *in vitro* study. ***Frontiers in Microbiology*** [Lausanne: Frontiers Media SA] DOI: 10.3389/fmicb.2017.01144. [**Impact Factor: 4.259**].

22. **Gowrishankar, S.,** & Pandian, S.K, 2017. Modulation of *Staphylococcus epidermidis* (RP62A) extracellular polymeric layer by marine cyclic dipeptide-cyclo(L-leucyl-L-prolyl) thwarts biofilm formation. ***Biochim Biophys Acta Biomembranes*** [Elsevier, The Netherlands] 14;1859(7):1254-1262. [**Impact Factor: 3. 79**].

23. Sivaranjani, M, Prakash, M, **Gowrishankar., S**, Nandhini, J.R, Pandian, S.K, 2017. *In vitro* activity of α-mangostin in killing and eradicating *Staphylococcus epidermidis* RP62A biofilms. ***Applied Microbiology and Biotechnology***. [Springer International, New York] 101(8):3349-3359. [**Impact Factor: 3.67**].

24. **Gowrishankar, S**., Kamaladevi, A., Balamurugan, K., and Pandian, S.K., *In vitro* and *in vivo* biofilm characterization of community-acquired methicillin-resistant *Staphylococcus aureus* from patients associated with pharyngitis infection. ***BioMed Research International*** [Hindawi Publishing Corp., New York] 2016, 1-14 Article ID 1289157 [**Impact Factor: 2.583**].

25. Sivaranjani, M., **Gowrishankar, S**., Kamaladevi, A., Pandian, S.K., Balamurugan, K., and Ravi, A.V., 2016. Morin inhibits biofilm production and reduces the virulence of *Listeria monocytogenes*- An *in vitro* and *in vivo* approach. ***International Journal of Food Microbiology*** [Elsevier, The Netherlands] 237, 73-82 [**Impact Factor: 4.006**].

26. **Gowrishankar, S**., Sivaranjani, M., Kamaladevi, A., Ravi, A.V., Balamurugan, K., Pandian, S.K., 2016. Cyclic dipeptide cyclo(l-leucyl-l-prolyl) from marine *Bacillus amyloliquefaciens* mitigates biofilm formation and virulence in *Listeria monocytogenes*. ***Pathogens and Disease*** [FEMS, Oxford University Press, USA] 74, 4, 49-60. [**Impact Factor: 2.483**].

27. **Gowrishankar, S**., Kamaladevi, A., Ayyanar, K.S., Balamurugan, K., Pandian, S.K., 2015. *Bacillus amyloliquefaciens*-secreted cyclic dipeptide – cyclo(L-leucyl- L-prolyl) inhibits biofilm and virulence production in methicillin-resistant *Staphylococcus aureus*. ***RSC Advances*** [Royal Society of Chemistry, England] 5, 95788-95804. [**Impact Factor: 3.840**].

28. **Gowrishankar, S**., Poornima, B., Pandian, S.K., 2014. Inhibitory efficacy of cyclo(L-leucyl-L-prolyl) from mangrove rhizosphere bacterium-*Bacillus amyloliquefaciens* (MMS-50) toward cariogenic properties of *Streptococcus mutans*. ***Research in Microbiology*** [Elsevier, New York, USA] 165, 278-289. [**Impact Factor: 2.889**].

29. **Gowrishankar, S**., Thenmozhi, R., Balaji, K., Pandian, S.K., 2013. Emergence of methicillin-resistant, vancomycin-intermediate *Staphylococcus aureus* among patients associated with group A Streptococcal pharyngitis infection in southern India. ***Infection, Genetics and Evolution*** [Elsevier, New York, USA] 14, 383-389 [**Impact Factor: 3.264**].

30. **Gowrishankar, S**., Mosioma, N.D., and Pandian, S.K., 2012, Coral-associated bacteria as a promising antibiofilm agent against methicillin-resistant and -susceptible

Staphylococcus aureus biofilms. ***Evidence-Based Complementary and Alternative Medicine*** [Hindawi Publishing Corp., New York] 2012, 862374 doi:10.1155/2012/862374 **[Impact Factor: 4.774]**.

Abstracts Published in Conferences

1. **Gowrishankar, S.,** and Pandian, S.K., (2012). Inhibitory effect of coral-associated bacterial extracts on methicillin-resistant and susceptible *Staphylococcus aureus* biofilms. ***Clinical Microbiology and Infection*** 18(S3): R2416 [Wiley, Paris] (**Impact Factor 6.425**). DOI: 10.1111/j.1469-0691.2012.03803.x
2. Pandian, S.K., and **Gowrishankar, S.,** (2012). Molecular characterization of methicillin-resistant *Staphylococcus aureus* with emergence of epidemic clone of sequence type (ST) 772 and novel ST 2129 in southern India. ***Clinical Microbiology and Infection*** 18(S3): R2531 [Wiley, Paris] (**Impact Factor 6.425**). DOI: 10.1111/j.1469-0691.2012.03803.x.
3. **Gowrishankar, S.,** Karthika, C., and Pandian, S.K., (2012). Understanding the proteome changes in *Listeria monocytogenes* upon treatment with marine cyclic dipeptide-cyclo(l-leucyl-l-prolyl) ***Journal of Proteins and Proteomics***, 9 (Special issue): JPP 95 **[Impact Factor: 1.0]**.

Book Chapters

1. **Gowrishankar, S.,** & Pandian, S.K., 2017. Flavonoids in the Treatment of Pulmonary Lung Diseases. In: ***Recent Advances in the Molecular Mechanism of Flavonoids***, K Pandima Devi (Ed.) [Studium Press (India) Pvt. Ltd. ISBN: 978-93-85046-21-6].
2. Kamaladevi, A., **Gowrishankar, S.,** & Balamurugan, K., 2017. *Klebsiella* spp. as a pathogen: Epidemiology, pathogenesis, identification, treatment and prevention. In: A bacterial infection Series, ***Handbook of Foodborne Diseases***, Dongyou Liu (Eds.) [CRC Press, Taylor and Francis Group, USA]. Chapter 33.

Faculty Profile updated as of 1st June, 2020