Dr. Sowndarya J
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BIOSKETCH

Dr. Sowndarya J is a Biofilm Researcher whose work centers on understanding and combating biofilm formation, a major challenge across medical and industrial domains. In clinical settings, biofilms frequently colonize medical devices and contribute to persistent, hard-to-treat infections. Their dense extracellular matrix provides strong protection, making them highly resistant to antibiotics and host immune defences. These microbial communities also coordinate their activities through quorum sensing, a signaling mechanism that controls collective behaviors, including virulence and persistence. Dr. Sowndarya's research combines advanced microbiology, virulence analysis, and biomaterial–microbe interaction studies to tackle device associated infections and Antimicrobial resistance.

Educational Profile

- **Doctor of Philosophy (Ph.D.) in Biotechnology**
  Year of Passing: 2024
  Thesis title: Preventing Orthopedic Implant Associated Biofilm Infections Using Transition Metal Complex Laminated Bioactive Implants
  Thesis Supervisor: Dr. P. Nithyanand, School of Chemical and Biotechnology, SASTRA Deemed University, Thanjavur

- **Master of Science in Biotechnology**
  School of Chemical and Biotechnology
  SASTRA Deemed University, Thanjavur

- **Bachelor of Science (B.Sc.) in Biotechnology**
  PSG College of Arts and Science, Coimbatore

Positions Held

Sep 2023 – Present	Assistant Professor Department of Biotechnology PSG Institute of Advanced Studies Peelamedu, Coimbatore

Research Areas:

- Biofilms
- Anti-infective Biomaterials
- Antimicrobial Resistance

Awards & Achievements

- 2020-2023- Junior Research Fellow, ICMR funded research project

- 2023- Received Dr. Hansel Fletcher and Dr. A. Wilson Aruni scholarship award from the Indian Association of Applied Microbiologists
- 2023- Received Dr. C. S. Srinandan Memorial Award for Best Research Publication in the academic year 2022-2023, CRID, SASTRA Deemed University, Thanjavur
- Selected for Water Advanced Research and Innovation (WARI) Fellowship Program 2025 (Unavailed)
- 2019- GATE Qualified in the life science paper
- 2019- Secured first prize in poster presentation conducted by CRID organization at SASTRA Deemed to be University, Thanjavur.

Journal Publications

1. Abdul Azeez, M. K., Merlin, M., Suresh, S. N., **Jothipandiyan, S.,** Pushparaj, C., Subramani, R., & Paramasivam, N. (2025). *Edible coating for extending prawn shelf life using synergistic antimicrobial combination of κ-casein, Chlorella, and carvacrol.* **ACS Food Science & Technology, 5(9)**, 3334–3341.

2. Gopinathan, S., Krishnan, S., **Jothipandiyan, S.,** Sivaraman, S., Satish, L., Venkatachalam, P., Ramiah Shanmugam, S., & Paramasivam, N. (2025). *Bioprospecting seaweed-derived bio-oil as a marine biofouling mitigating agent.* **Biofouling, 41(8)**, 767–782.

3. Krishnan, D., Senthil Kumar, S. A., **Jothipandiyan, S.,** Yamuna Devi, V., Suresh, D., & Nithyanand, P. (2025). *Quinazoline-derived copper(I) complex coated intravaginal ring against VVC-causing Candida species.* **Biofouling, 41(4)**, 378–393.

4. Senthil Kumar, S. A., Praveenkumar, K., **Jothipandian, S.,** Swaroop, S., & Nithyanand, P. (2025). *Nanoscale surface modifications on titanium plates to mitigate MRSA biofilm-mediated implant infections: A pilot study.* **Microbial Pathogenesis, 203**, 107481.

5. Krishnan, S., Prarath, N., **Jothipandiyan, S.,** et al. (2025). *Valorization of seaweed aqueous phase against nosocomial pathogens.* **Waste and Biomass Valorization, 16**, 2959–2968.

6. Gayatri, M., **Sowndarya, J.,** Azeez, M. K. A., Sudharsan, M., Suresh, D., & Nithyanand, P. (2024). *Novel thiazolinyl-picolinamide palladium(II) complex attenuates virulence and biofilms of Candida causing VVC.* **International Microbiology.**
7. Krishnakumar, S., Khalid, A. A. M., **Sowndarya, J.,** Krishnasamy, L., & Nithyanand, P. (2024). *Phenotypic and genotypic characterization of MRSA associated with pyogenic infections.* **Iranian Journal of Microbiology, 16(4)**, 443–449.

8. Kumarappan, A., Sujatha, S. K. V. B., Krishnan, S., Vellingiri, K., **Jothipandiyan, S.,** Venkatachalam, P., Satish, L., Shanmugam, S. R., & Paramasivam, N. (2024). *Exploring bio-oil aqueous phase from seaweed biomass as biofilm disruptive agents.* **61**, 104579.
9. Kumar, S. A. S., Krishnan, D., **Jothipandiyan, S.,** Durai, R., Hari, B. N. V., & Nithyanand, P. (2024). *Cell-free supernatants of probiotic consortia impede hyphal*

formation and disperse Candida biofilms in an ex-vivo model. **Antonie van Leeuwenhoek, 117(1)**, 37.

10. **Sowndarya, J.,** Suresh, D., Saravanan, S., & Nithyanand, P. (2023). *Palladium(II) metal complex fabricated titanium implant mitigates dual-species biofilms in simulated synovial fluid.* **Antibiotics, 12(8)**, 1296.
11. Rubalya, V. S., Arockia Jayalatha, K., Atchaya, S., Kannan, S., Nithyanand, P., & **Sowndarya, J.** (2023). *Intelligent food packaging and shelf-life improvement of chapattis using hybrid nanoparticle-based biopolymer electrospin coating.* **ACS Food Science & Technology.**
12. Srividhya, K., Subramaniyasharma, S., **Sowndarya, J.,** Ponnusami, V., Saravanan, R. S., & Nithyanand, P. (2023). *Bioprospecting aqueous phase from pyrolysis of plant waste residues to disrupt MRSA biofilms.* **Biofouling.**
13. **Sowndarya, J.,** Suresh, D., Sankaran, V. S., Thamotharan, S., Kumaravel, S., Preethi, V., Saravanan, S., Gowrishankar, S., Karutha Pandian, S., & Nithyanand, P. (2022). *Heteroleptic pincer palladium(II) complex–coated orthopedic implants impede AbaI/AbaR quorum sensing and biofilm development by Acinetobacter baumannii.* **Biofouling, 38(1)**, 55–70.
14. **Sowndarya, J.,** Suresh, D., Saravanan, S., Sudharsan, M., Raghunandhakumar, S., & Nithyanand, P. (2022). *Transition metal complex laminated bioactive implant alleviates methicillin-resistant Staphylococcus aureus virulence.* **Biomaterials Advances, 212813**.
15. Srikanth, R., Banu, S. F., **Sowndarya, J.,** Parveen, J., Rubini, D., Wilson, A., & Nithyanand, P. (2021). *Biosurfactant synergized with marine bacterial DNase disrupts polymicrobial biofilms.* **Folia Microbiologica, 66(5)**, 831–842.
16. **Sowndarya, J.,** Rubini, D., Simran, S., Senthilkumar, M., Nithyanand, P., & Vadivel, V. (2020). *Gallic acid and agricultural byproducts modulate the biofilm matrix exopolysaccharide of Ralstonia solanacearum.* **Current Microbiology, 77**, 3339–3354.
17. **Sowndarya, J.,** Farisa Banu, S., Madhura, G., Yuvalakshhmi, P., Rubini, D., Bandeira Junior, G., Baldisserotto, B., Vadivel, V., & Nithyanand, P. (2019). *Agro food by-products and essential oil constituents curtail virulence and biofilm of Vibrio harveyi.* **Microbial Pathogenesis, 135**, e103633.

M.Sc/B.Tech Projects supervised: 9