

AKASH KRISHNAMOORTHY

RESEARCHER



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PORTFOLIO

Scopus ID : 59062764600 **Researcher ID** : JCT-7708-2023
ORCID : 0000-0002-1858-8047 **ResearchGate** : <https://www.researchgate.net/profile/Akash-Krishnamoorthi/research>
LinkedIn : <https://www.linkedin.com/feed/> **Website** : [Akash Krishnamoorthi - Google Scholar](#)

PROFESSIONAL PROFILE

Microbiologist with hands-on research experience in environmental and applied microbiology. Proficient in the biodegradation of LDPE using microbial consortia. Skilled in formulating and applying microbial inoculants and liquid biofertilizers. Investigated mosquitocidal properties of biosurfactants for eco-friendly vector control. Conducted gut microbiota analysis of *Tenebrio molitor* for potential probiotic and biodegradation applications. Passionate about sustainable biotechnological solutions and microbial ecology.

EDUCATION

Doctor of Philosophy (Ph.D.) in Agricultural Microbiology, Annamalai University, Chidambaram, Tamil Nadu, India.	- OGPA : 9.32
Master's in Agricultural Microbiology, Annamalai University, Chidambaram, Tamil Nadu, India.	Graduated, August 2021 OGPA : 9.17
Bachelor's in Agriculture, Ramakrishna Mission Vivekananda Educational and Research Institute, Coimbatore campus, Tamil Nadu, India.	Graduated, May 2019 OGPA : 8.57
Higher Secondary Education (HSC) CSI VELLORE DIO MHSS, Ranipet, Tamil Nadu, India.	Graduated, May 2015 Percentage : 78.41 %
Secondary School Education (SSLC) CSI VELLORE DIO MHSS, Ranipet, Tamil Nadu, India.	Graduated, May 2013 Percentage : 93.6 %

WORK EXPERIENCE

- ❖ Experienced as project fellow (3 years) in TANSCH Project entitled “**Biodegradation of low-density polyethylene (LDPE) using gut Microbial Consortium isolated from Indian Meal Worm (*Tenebrio molitor*)-An approaching feasible technology**” (**Project layout – Rs.48,56,000 /-**)
- ❖ Experienced in conducting paddy field trials by NOVOZYMES, Bangalore entitled “Bio efficacy of LCO fortified MYC in paddy” and “Bio efficacy studies of RHIZOMYX GR formulations as soil application in paddy”

RESEARCH EXPERIENCE

Ph.D. Researcher [Annamalai University, 2019 - 2025]

- ✓ Biodegradation of LDPE.
- ✓ Microbial inoculants and liquid biofertilizer.
- ✓ Bioefficacy of liquid formulation over the growth and yield attributes of Bhendi.
- ✓ Mosquitocidal activity of Biosurfactant.
- ✓ Gut microbiota of *Tenebrio molitor* (Indian Mealworm)
- ✓ Experience in screening and characterization of LDPE degrading bacteria from gut of Styrofoam fed *Tenebrio molitor*
- ✓ Suitable training and knowledge have been gained on the spectral and molecular characterization of nanoparticles using DLS, SEM, TEM, NMR, XRD, Atomic Force Microscopy and Confocal Laser Scanning Electron Microscopy.
- ✓ Deposited ***Priestia megaterium* strain RP1/S1** from the gut of *Tenebrio molitor* 16S ribosomal RNA gene, partial sequence NCBI Accession No. ON024787 is capable of degrading Styrofoam and other plastics.
- ✓ Deposited ***Bacillus cereus* strain AP01** from the gut of *Tenebrio molitor* 16S ribosomal RNA gene, partial sequence NCBI Accession No. SUB13692889 Bacillus OR288218 capable of degrading Styrofoam and other plastics.
- ✓ Deposited ***Priestia flexa* strain AP02** from the gut of *Tenebrio molitor* 16S ribosomal RNA gene, partial sequence NCBI Accession No. SUB13692978 Priestia OR288580 capable of degrading Styrofoam and other plastics.
- ✓ Deposited ***Bacillus pumilus* strain AP03** from the gut of *Tenebrio molitor* 16S ribosomal RNA gene, partial sequence NCBI Accession No. SUB13692988 Bacillus OR295391 capable of degrading Styrofoam and other plastics.
- ✓ Deposited ***Bacillus subtilis* strain AP04** from the gut of *Tenebrio molitor* 16S ribosomal RNA gene, partial sequence NCBI Accession No. SUB13692993 Bacillus OR288581 capable of degrading Styrofoam and other plastics.
- ✓ Deposited ***Priestia aryabhattai* strain KA1** from the gut of *Tenebrio molitor* 16S ribosomal RNA gene, partial sequence NCBI Accession No. SUB14493779 Priestia PP854711 capable of degrading Styrofoam and other plastics.
- ✓ Deposited ***Priestia aryabhattai* strain KA2** from the gut of *Tenebrio molitor* 16S ribosomal RNA gene, partial sequence NCBI Accession No. SUB14493898 Priestia PP855417 capable of degrading Styrofoam and other plastics.
- ✓ Deposited ***Franconibacter daqui* strain SPF8** from the gut of wax worm 16S ribosomal RNA gene, partial sequence NCBI Accession No. SUB14701100 Froncibacter, PQ269787, capable of degrading Styrofoam and other plastics.

Supporting Researcher [Annamalai University, 2023-2024]

- Worked on antidiabetic properties of natural compounds from medicinal plants.

PROFESSIONAL EXPERIENCE

- Chief Technical Officer [Research Hub, 2024 – Present]

TECHNICAL SKILLS

- **Molecular Biology Techniques:** PCR
- **Instrumentation & Analysis:** LC-MS, GC-MS, HPLC-MS, molecular docking, spectroscopy.
- **Graphical Illustration:** Adobe Creative tools.
- **Software:** Microsoft tools, basic programs (R), Statistical tools (GraphPad Prism, Origin).

THESIS

Doctor of Philosophy – Thesis

Enhanced biodegradation and mineralization of Low-Density Polyethylene (LDPE) by bacterial strain from the gut of plastic-eating mealworm

Master's – Thesis

Studies on the development of liquid formulations of biofertilizer consortium and assessing shelf life of the microbial inoculants

PUBLICATIONS

1. **Akash, K.**, Parthasarathi, R., Elango, R., & Bragadeeswaran, S. (2025). Exploring the plastic-fed Indian mealworm (*Tenebrio molitor*) gut bacterial strain (*Bacillus subtilis* AP-04)–A potential driver of polyethylene degradation. *Journal of Hazardous Materials*, 486, 137022. **Elsevier** (Impact factor: **11.3**; **NAAS 17.3**)
2. **Akash, K.**, Parthasarathi, R., Elango, R., & Bragadeeswaran, S. (2024). Characterization of *Priestia megaterium* S1, a polymer-degrading gut microbe isolated from the gut of *Tenebrio molitor* larvae fed on Styrofoam. *Archives of Microbiology*, 206(1), 48. **Springer Nature** (Impact factor: **2.6**; **NAAS 8.6**)
3. **Akash, K.**, Parthasarathi, R., Elango, R., & Bragadeeswaran, S. (2025). Exploring the intricate studies on low-density polyethylene (LDPE) biodegradation by *Bacillus cereus* AP-01, isolated from the gut of Styrofoam-fed *Tenebrio molitor* larvae. *Biodegradation*, 36(1), 12. **Springer Nature** (Impact factor: **3.2**; **NAAS 9.2**)
4. **Akash, K.**, Parthasarathi, R., Kanmani Bharathi, J., & Elango, R. (2025). Exploring the Role of Microbes in the Biodegradation of Plastic Waste: Mechanisms, Interactions, and Implications for Sustainable Waste Management-A Review. *Water, Air, & Soil Pollution*, 236(12), 1-49. **Springer Nature** (Impact factor: **3.0**; **NAAS 9.0**)
5. Parthasarathi, R., Mayakrishnan, V., Natesan, V., **Akash, K.**, Poonguzhali, P., Ramamoorthy, K., ... & Choon, C. K. (2024). *Serratia rubidaea* SNAU02-mediated biosurfactant production from cashew apple bagasse: A promising biotechnological strategy for environmental sustainability. *Biocatalysis and Agricultural Biotechnology*, 58, 103158. **Elsevier** (Impact factor: **3.8** ; **NAAS 9.8**)
6. Parthasarathi, R., Sivasakthivelan, P., Arivukkarasu, **K., Akash, K.**, Gnanasekaran, A., Poonguzhali, P., & Vijayakumar, N. Biosurfactant-based biocontrol of agriculturally important plant pathogens. *Eur. Chem. Bull.* 2023, 12 (Special Issue 10), 3279 - 3296

7. Kaviarasi V, Parthasarathi R, **Akash K**, Senthil KM, Raja K, Sherene JRT, Vijayapriya M, Anandha KS. Microbial biofilms and their role in sustainable agriculture and climate-smart farming. *Plant Science Today*. 2026;13(sp1):01–11. **(NAAS 6.70)**
8. V. Kaviarasi, R. Parthasarathi, *, **K. Akash**, M. Senthilkumar, K. Raja, and T. Sherene Jenita Rajammal (2026). Microbial Degradation of Polystyrene: Mechanisms, Enzymes and Environmental Significance. *Microbiology*, 2026, Vol. 95, No. 2, pp. 184–207. **Springer (Impact factor: 1.3; NAAS 7.3)**
9. Rengasamy Parthasarathi, Jagnathan Nambi , Naaganoor Ananthan Saravanan, **Krishnamoorthi Akash** and Veeramalai Kaviarasi (2025).Effect of New Biofertilizer Formulations on the Growth and Yield of Rice (*Oryza sativa* L., var. VGD1) under Field Conditions. *Journal of Experimental Agriculture International*, Volume 47, Issue 7, Page 435-443. **(NAAS 5.14)**
10. **K. Akash**, Elango.R, Parthasarathi.R and KaviniLavu.N. (2022). Influence of Liquid Formulations on Growth and Yield of Bhendi Var. Arka Anamika. *Indian Journal of Natural Sciences*, 13, (74). **(NAAS 4.37)**
11. R Parthasarathi, R Elango, J. Srimannarayana, **K Akash** and N KaviniLavu. (2021). Effects of bio-fertilizer on growth and yield of rice (*Oryza sativa*) AU1GSR cultivar. *International Journal of Botany Studies* 6(5), 673-676. **(NAAS 4.37)**

BOOK CHAPTERS

1. Parthasarathi, R., Harini, S., Poonguzhali, P., **Akash, K.**, & KaviniLavu, N. (2023). **Mosquitocidal Activity of Biosurfactants**. In Multifunctional Microbial Biosurfactants (pp. 251-269). Cham: **Springer Nature Switzerland**.
2. **K. Akash**, R.Parthasarathi, and Elango. R (2023). **Critique on plastic pollution reduction strategies**. Archives of Agriculture and Allied Sciences

MAGAZINES

1. **Krishnamoorthi Akash**, Rengasamy Parthasarathi, Rajavel Elango, Gunasekaran Dhurgadevi and Arjunan Sageetha. Quorum Sensing. *AgriTech Today e-Magazine: Volume 2, Issue 11* (February, 2025).
2. **Krishnamoorthi Akash**, Rengasamy Parthasarathi, Rajavel Elango, Gunasekaran Dhurgadevi and Arjunan Sageetha. Bioremediation and Phytoremediation of Contaminated Soils. *AgriTech Today e-Magazine: Volume 2, Issue 9* (December, 2024).

CONFERENCES

1. Participated in the 7th National Youth Convention on Food Security to Nutritional Security: Youth Perspective (FSNS 2022) entitled “**Biosurfactant production using *Bacillus subtilis* RP1 from agro-industrial wastes and its potential antifungal activity against *Alternaria***” conducted by TNAU, Coimbatore held on March 24- 25, 2022.
2. Participated in the National Seminar on “**Immunology and Immunotechnology Research**” conducted by the Centre of Advanced Study in Marine Biology, Faculty of Marine Sciences, Annamalai University held on 27th and 28th July 2023.

3. Oral presentation in the **International Conference on Sustainable Technologies for Energy, Environment, and Health (IC-STEEH) [17-19 September 2025]** in the title of **“Styrofoam-fed mealworm gut bacterial strain *Priestia aryabhattai* KA 1 in LDPE Biodegradation”** at Vellore Institute of Technology (VIT).

AWARDS/HONORS

1. Pursued as **“ANTI DRUG COMMITTEE SECRETARY** “in the Faculty of Agriculture, Annamalai University, India (2023-2025).
2. **“Best Research Scholar Award”** in the field of Agricultural Microbiology on the occasion of the International Conference on Global Challenges of Food and Agriculture: Future Trends (GCFA-2023), Perambalur, Tamil Nādu, India held on 18th March 2023.
3. **“Prof. M. S. Swaminathan Award”** in the 9th National Conference on Addressing Environment CHALLENGES IN Agricultural Production held at Pushkaram College of Agricultural Sciences, Pudukkottai, Tamil Nādu, on 29th December, 2023.
4. **“Norman E. Borlaug Young Scientist Award”** in the 2nd National Conference on Vision-2047: Technology Intervention for Prospects of Agriculture in India (TIPAI 2024), JSA College of Agricultural and Technology on 17th February, 2024.

TRAINING/ WORKSHOPS

1. Completed 10 days of National training on **“Addressing Bottlenecks in Exploitation and Commercialization of Effective Microbes for their Utilization in Natural Farming”** held on ICAR-National Bureau of Agriculturally Important Microorganisms from January 22nd to 31st, 2024
2. Completed 5 days of National training on **“Familiarization, Handling and Training on Sophisticated Analytical and Energy Audit Instruments for Engineers”** held on August 18th-22nd 2025, organized by the Department of Energy and Environment, National Institute of Technology, Tiruchirappalli
3. Completed one day of PG & Research Department of Microbiology & IQAC Workshop ON **“Biofertilizer and Composting Technology”** on 14th March 2024, Shanmuga Industries Arts & Science College, Affiliated to Thiruvalluvar University, Vellore and approved by the Govt. of Tamilnadu & AICTE, Manahirpet Road, Tiruvannamalai.

Online courses

- ❖ Completed 4 credit courses **“Food Microbiology and Food Safety”** with a consolidated score of 92% from the evaluation based on continuous online assessments and the proctored examination held in February 2023

Webinars

1. Participated in NABS & DST Purse II Sponsored International Webinar on **“Recent Developments of Beneficial Microorganisms in Food and Agriculture (RDBMFA-2021]”** organised by the

Department of Agricultural Microbiology, Faculty of Agriculture, Annamalai University on 14th September 2021.

2. Actively participated in NATIONAL ACADEMY OF BIOLOGICAL SCIENCES (NABE) & DST PURSE II SPONSORED the International Virtual Conference on “**NANO COMES TO LIFE**” Organized by the Department of Microbiology, Faculty of Agriculture, Annamalai University, Annamalai Nagar, Tamil Nadu on 17th September
3. Participated a National Academy of Biological Sciences (NABS) & DST - PURSE - II Sponsored International Virtual Conference on “**PROBIOTICS IN AQUACULTURE AND CONSUMPTIVE USE VALUE OF MARINE BIODIVERSITY - AQUABIO-2021**” conducted by Division of Animal Husbandry, Faculty of Agriculture, Annamalai University on 18th September, 2021

LANGUAGES

- ✓ ENGLISH
- ✓ Tamil

SPORTS ACTIVITIES

- ❖ Declared as **RUNNER** in the Cricket competition of the Annual Sports Meet- 2023 held at the Faculty of Agriculture, Annamalai University

REFERENCE

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