Dr. ASOKAN SUBBAIYAN, Assistant Professor

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Career Profile

Ideal teaching and dedicational research around 17 years of experience gained on microbiological teaching and in lab environment on leading teams. Highly suits to an ever changing fast paced environment with organizational skills and can perform multiple tasks simultaneously. An outgoing personality with multifaceted skill sets can able to contribute towards holistic development of organizational performance.

Education

- Doctorate of Philosophy, Microbiology
  Bharathidasan University - India – 2007
- Master of Science, Microbiology
  Bharathidasan University – India – 2000
- Post Graduate Diploma in e Commerce
  TCPS - India – 2002

University Recognition

- Bharathidasan University approval for the post of **Lecturer** in Microbiology as per the UGC norms.
- Bharathidasan University recognized as a **Research Advisor** for guiding research in Microbiology.

Research Guidance:

- 07 Doctoral ongoing Research in the University of Bharathidasan.
  - The research deals with Antimicrobial activity of Medicinal Plants/Sea Grasses against various human pathogens and Molecular based studies.
- Around 30 Master of Philosophy Research were awarded in the University of Bharathidasan.
  - The research dealt with various challenging tasks of Applied Microbiology.

Ongoing PhD works are:

1. **Topic:** Bioactive potential of sea grasses against eye pathogenic bacteria and compound study.

   Selected Eye pathogens: *E.coli, Cornynebacterium, Entero coccus faecalis, Bacillus subtilis, Pseudomonas aeruginosa, Methicillin sensitive Staphylococcus aureus , Methicillin sensitive Staphylococcus saprophyticus, Epidermitis* and *Klebsiella pneumonia*.

Selected Sea grasses: *Cymodocea serrulata, Halophillia ovalis, Halodule pinifolia*

2. **Topic:** Bioactive compounds of Marine Cyanobacteria against eye pathogenic bacteria and compound study.

   Selected Eye pathogens*: E.coli, Cornynebacterium, Entero coccus faecalis, Bacillus subtilis, Pseudomonas aeruginosa, Methicillin sensitive Staphylococcus aureus , Methicillin sensitive Staphylococcus saprophyticus, Epidermitis* and *Klebsiella pneumonia*.

3. **Topic:** Antifungal activity of traditional medicinal plants against human pathogenic dermatophytes.

   Selected Dermatophytes: *Trichophyton rubrum, Mentagrophtes, Epidermophyton floccosum, Microsporum canis* and *Microsporum gypseum*.

   Selected Medicinal plants: *Cassia alata, Cassia fistula* and *Cassia occidentalis*.

4. **Topic:** Genetic analysis of *rpo* gene in *Tuberculosis*.

5. **Topic:** Effect of diabetic related ocular disorders on bacterial conjunctival flora.

Awarded Mphil works under my guidance

Various researchers studied in the area of General microbiology and Medical microbiology. The study areas and Topics were:

Medical microbiology: Studies on Superficial fungal infections of human beings, Studies on antibody resistant MDR *Tuberculosis*, Isolation and Biochemical study of *Leprosy*, Comparative study of Urinary tract infection in adults, Antibacterial efficacy of *Spirulina* and *Chlorella* against pathogenic *Staphylococcus Sps* , Evaluation of possible microbial contamination in eye drop bottles used by patients in day to day practice, A study of biochemical changing events in Leptospirosis patients,

General microbiology: Effluent treatment using *Aspergillus niger*, Effluent treatment using *Cyanobacteria*, AM fungal colonization in salt marsh plants, Hepatotoxicity in Rats, Alkaline protease production using *Bacillus licheniformis*, Productivity of PHB using *Alcaligens eutrophus*, Nutritional analysis and antibacterial efficacy of *Spirulina* and *Chlorella*, Studies on heavy metal removal from industrial effluent using *Thormidium behneri* [Cyanobacteria]. Nodulation effects of *Rhizobium*, Studies on AM fungal infections in salt marsh plants, Seasonal variations of AM fungi in mangrove plants, Lipid peroxidation and antioxidant status in filter and non filter cigarette smokers. Comparative study of AM fungi treated medicinal plant with control. Isoenzymes characterization of AM fungi treated *Solanum suratence* [Medicinal plant].

Skills Highlights

- Experimental studies on Medical Microbiology and Biotechnology.
- Laboratorial studies on Antimicrobial activity of Medicinal Plants/Sea Grasses.
- Experience in Molecular biology and Immunology lab.

- Experimental studies on Soil and Agricultural Microbiology.
- Experience in MS word and Excel.

Title of my Doctoral Research

Studies on Arbuscular Mycorrhizas (AM) in salt marsh plants of the **Mallipattinam and Manora Estuaries** along the south east coast of Tamil nadu, India.

Summary of my Doctoral Research area

Morphological types of AMF in roots of 12 salt marsh plants and the diversity of colonizing AM fungal species in roots of *Salicornia brachiata* and *Sesuvium portulacastrum* were investigated by using PCR based molecular techniques. Mass inoculums producing of saline tolerant strains of as the host plant *Zeamays* and also to study the influence of native AM fungus, *Glomus aggregatum* (Manora isolate) in different concentrations of NaCl on growth, nutrition, biochemical constituents and saline tolerance of *Solanum surattense* L.

Experience

Annai Group of Institutions, India

Assistant Professor/Research Adviser **October 2015 to Present**

- Specialized research professional working with and under the direction of the clinical Principal Investigator.
- Supports, facilitates and coordinates the daily research trial activities and plays a critical role in the conduct of the study.
- Framing laboratory protocols, teach to team towards results finding and monitoring. Resolving the experimental and management risk.
- Organize conferences, seminars and workshops that related to team research.
- Managing various high end projects and provide end-to-end result. Experience in working with various team managers to bring the project status on board for review and follow-up action.
- Works with department, sponsor and institution to support and provide guidance on the administration of the compliance, financial, personnel and other related aspects of the Research study.
- Reporting primarily to the Principal Investigator with associated responsibilities to the department head, division administrator/program administrator

Assistant Professor **May 2006 to July 2009**

- Preparation of agars, reagents, enrichment broth etc. as needed for the microbiological test.

- Plate reading and counting of the colony for aerobic plate count, mesophilic spore, thermophilic spore, thermophilic bacteria count.
- Record the results into the logbook and into the raw materials and finished product analysis report.
- Submit the raw material analysis report and finished product analysis report to laboratory manager for verification.
- Conduct microbiological testing in an aseptic, timely manner for coliforms, yeast & mold, aerobic plate count and other special test for incoming raw materials, in-process and finished product according to quality plan and standard written procedure.
- Conduct environment monitoring and equipment swab test in the production and personnel hygiene as stated in the standard procedure.
- Maintained the cleanliness and hygiene of the microbiological room including the equipment maintenance and inventory of the supplies.
- Report to the laboratory Manager in case there is any fluctuation or out of specification of the analysis test results
- Perform any other related duties as assigned by immediate supervisor.

MaruthuPandiyar Group of Institutions, India

Assistant Professor/Research Adviser **February 2010 to September 2015**

- Specialized research professional working with and under the direction of the clinical Principal Investigator.
- Supports, facilitates and coordinates the daily research trial activities and plays a critical role in the conduct of the study.
- Framing laboratory protocols, teach to team towards results finding and monitoring. Resolving the experimental and management risk.
- Organize conferences, seminars and workshops that related to team research.
- Managing various high end projects and provide end-to-end result. Experience in working with various team managers to bring the project status on board for review and follow-up action.
- Works with department, sponsor and institution to support and provide guidance on the administration of the compliance, financial, personnel and other related aspects of the Research study.
- Reporting primarily to the Principal Investigator with associated responsibilities to the department head, division administrator/program administrator

Bharathidasan University, India

Guest Lecturer| Research Lead **August 2009 to February 2010**

- Performs chemical, microscopic and bacteriologic tests to provide data for use in treatment and diagnosis of disease.

- Receives specimens from lab or obtains specimens directly from patient and makes quantitative and qualitative chemical analyses.
- Cultivates isolates and identifies pathogenic bacteria, parasites and other microorganisms.
- Prepares stains, reagents, media and solutions necessary for the performance of all laboratory tests.
- Performs microscopic and cultural examinations on milk, water, food, feces, nose, throat and blood specimens for bacteriological studies.
- Performs approved serological tests.
- Tests new and improved laboratory methods and procedures. Prepares laboratory notes, charts and graphs and writes up results of examinations. Keeps accurate daily records. Performs related duties as requested.
- Evaluates quality control and quality assurance statistics and modifies manuals as needed.
- Develops a budget for the laboratory and maintains control of lab costs.

Sri Venkateswara Group of Institutions, India

Assistant Professor **June 2000 to April 2006**

- Course work notes preparation and teaching about medical and applied microbiological subjects.
- Preparation of agars, reagents, enrichment broth etc. as needed for the microbiological test.
- Plate reading and counting of the colony for aerobic plate count, mesophilic spore, thermophilic spore, thermophilic bacteria count.
- Record the results into the logbook and into the raw materials, finished product analysis report, and submit to laboratory manager for verification.

Paper Publications

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1. **S.Asokan** and N.Jayanthi, 2017 ”**Rapid screening of Methicillin Resistant *Staphylococcus aureus* (MRSA) from conjunctival region”** *International Journal of Scientific Research. Vol 6 (02): 169-173.*

2. **S.Asokan** and N.Jayanthi, 2017 *“***Phytochemical analysis of various Honey samples obtained from Theni District, South India”** *International Journal of Current Research. Vol 9 (01): 45387-45390.*

3. J.Sangeetha and **S.Asokan**, 2016. “**Phytochemical analysis and Antibacterial activity of the three different Sea grass extract”** *International Journal of Advanced Research. Vol 4 (5):* 1451-1457.

4. **S.Asokan** and N.Jayanthi, 2015. “**Effect of diabetic related ocular disorders on bacterial conjunctival flora”** *International Journal of Advanced Research. Vol 3(12): pp 719-724.*

5. **S.Asokan** and J.Sangeetha, 2015. “**Antbacterial activiy of different Sea Grass extracts against some human eye pathogens”,** World journal of pharmacy and pharamaceutical sciences*. Vol 4(12): pp 677-683*

6. **S.Asokan** and J.Sangeetha, 2015. “**Identification of MDR *Mycobacterium tuberculosis* and corresponding changes in *rpoB* gene***”, International Journal of Advanced Research in Biological Sciences. Vol 2(6):* pp *36-44.*

7. **S.Asokan** and C.Sucithra, 2011. "**Productivity of poly β hydroxybutyrate by *Alcaligenes eutrophus* and *Bacillus megaterium* using different substrates from municipality waste soil sample**", *Asian journal of Microbiology, Biotechnology and Environmental science.* Vol 13.No. (2): 65-6.

8. **S.Asokan** and S.Siddharthani, 2010. "**Comparative study of Urinary Tract Infection on Adults**", *International Journal of Basic and Applied Biology*, Vol 3 (1): pp 103-108.

9. **S.Asokan** and S. Siddharthani, 2010. "**Hepatoprotective activity Plumbago zeyloanica.L. against carbon tetrachloride- induced hepatotoxicity in Rats",** *International Journal of Basic and Applied Biology*, Vol 3 (2): pp 109-114.

10. **S.Asokan** and R.Priyadharshini, 2010. "**Biodegradation of leather industry effluent using indigenous Fungal isolates**", *International Journal of Pure and Applied Microbiology*, Vol 4 (1): pp 401-408.

11. **S.Asokan** and C.Jayanthi, 2010. *"***Alkaline Protease Production by *Bacillus licheniformis* and *Bacillus Coagulan",** *Journal of Cell and Tissue Research*, Vol 10 (1): pp 2119-2123).

12. **S.Asokan**, T.Selvaraj and S.Madhavan, 2010. "**Seasonal variations of Arbuscular Mycorrhiza colonization and population in salt marsh plants of Mallipattinum and Manora, South East Coast of India**", *International Journal of Ecotoxicology and environmental monitoring*, Vol 20(4): pp 305-311.

13. **S.Asokan** and M.Neelakandan, 2010. "**Meristmatic and nodulation effect on *Arachis hypogaea.L* by inoculation of *Rhizobium Sp* from *Sesbania rostrata.L",.*** I*nternational Journal of Basic and Applied Biology*, Vol 4 (1&2): pp 332-337.

Paper Presentation

- Participated and presented a paper in the "State Level Inter-Collegiate Student Seminar on Microbiology" conducted by Dept of Botany & Microbiology. A.V.V.M Sri Pushpam College (Autonomous), India
- Research papers presented and published in " Challenging Issues and Technological approaches in Medicine (**CITAM 2016**)" conducted by Dept of Science and Humanities, Avinasilingam University, Coimbatore, India.
  - Multi drug resistant pathogens recovered from eye infections in diabetes.
  - Anti-dermatophytic activity of some traditional medicinal plants against human pathogenic dermatophytes.
  - Antibacterial activity of Actinomycetes against some eye pathogens.
  - Antibacterial activity of different sea grass extracts against some ocular pathogens.

Workshop and Seminar Participation

- "International seminar on Uses of Biotechnological tools for Bio-resources Conservation and Utilization for Sustainable Development" Conducted by Dept of Botany & Microbiology. St. Joseph's (Autonomous), Trichy, India.

- A State Level Work Shop on "Mycorrhizal Technology" Organized by Dept of Botany & Microbiology A.V.V.M Sri Pushpam College (Autonomous), India.

- "National seminar on Recent advances in Plant Pathology" Organized by the Department of Botany, University of Pune, South India**.**

- "International Scientist meet - 2016" Organized by Dept. of Biotechnology, St. Joseph's College(Autonomous), Trichy , India

- One Day Seminar on "Research Avenues in Biosciences - 2015" Organized by School of Biosciences, Marudupandiyar College, Thanjavur, India.

- "National Seminar – Herbal Focus – 2013" Conducted by Dept. of Microbiology, Srimad Andavan College (Autonomous), Sponsored by ICMR, New Delhi, India.

Techniques known

- **Molecular biology:** PAGE, PCR, RFLPs, DNA –marker analysis, DNA sequencing, Hybridization, Blotting techniques, Chromatography, NMR, Gel Doc, Immunoprecipitation and Synchronous culture.

- **Clinical Microbiology:** Clinical sample collection, Medium and Broth preparation, Sterilization, Aerobic and Anaerobic culture, Microbial growth observation, Molecular techniques in laboratory diagnosis of pathogens from different clinical sample and Antimicrobial sensitivity test.

- **Clinical Biochemistry:** Blood, Urine, Semen, Stool, Sputum, Saliva, CSF sample collection and analysis, Renal function tests, Liver function tests.

- **Clinical Immunology (Serology):** Immunoassay, Immunofluorescence, ELISA, Immunoelectrophoresis, Immunoprecipitation, Immuno diffusion, hemagglutination, Coombs test, Cross matching test. Leukoagglutination test, Complement fixation test, Neutralization reactions and Agglutination in Microbiology.

- **Instrument handling**: PCR, Gel documentation and analysis, ELISA reader, Ultrasonicator, Blotters, Hybridizer, Mass Spectrometry, Electrophoresis unit, DNA sequencer, Micro array scanner, UV crosses linker, X Ray crystallography and Protein synthesizer.

Special Expertise

- Immunology.
- Medical Microbiology.
- Virology
- Clinical Parasitology
- Molecular biology
- Microbial Physiology & Biotechnology.

- Soil & Agricultural Microbiology.
- Food & Dairy Microbiology.
- Environmental Microbiology
- Industrial Microbiology

References

Available upon request.