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Dr. MANAS SARKAR, Ph.D.

SENIOR MANAGEMENT PROFESSIONAL

Consummate professional seeking senior level assignments in Research & Development, New Product Development / Technology Innovation with a leading organization of repute

Industry Preference: Pesticides, Agro Based, Home & Hygiene Care, FMCG, Public Health and Bio-Tech (Non Pharma) industries

Soft Skills



Career Summary

- Offering **13+ years** of successful career in steering the responsibilities as a successful experimental scientist and techno-commercial leader in both **private** (Entogenex & Godrej) and **public sector** domain (DRDO & MOHFW)
- Strong understanding of new technologies** and the competitive ecosystem in Home & Hygiene Care, Public Health Pesticide, Household Insecticide, and allied Product; capabilities in playing an advisory role and provide thought leadership & development recommendations
- Consistently focused on instilling a highly effective product development roadmap and optimally managing the vector control projects in **India, Africa, & Southeast Asia**
- Expertise in **steering the entire product development cycle** including requirement analysis, planning, monitoring, market surveying, prototype development, overall testing, & commercialization
- Leadership:** A positive influencer with propensity for leading, mentoring & managing technically, behaviorally, & culturally diverse individual(s)/team(s); proven track record of improving team skills and velocity
- Technical Domain:** Entomology, Chemical Ecology, Pesticide Chemistry, Biotechnology, Public Health, Human Hygiene & Diseases, Insect Neurogenetics, Molecular Biology, Insecticides Formulations, Biopesticides, New Herbal/GRAS Molecule Development, FMCG, Household Insecticide, Polymer Technology, Phytochemistry, Biodefence
- Taking additional responsibility as **Adjunct Professor of Industrial Technology & Ph.D. Research Guide** at KiiT University, Bhubaneswar (Feb' 17 – Present)
- An experienced communicator to a broad & diverse global audience; proven success in having high-quality interactions with clear and consistent communications with partners and stakeholders

Core Competencies

Product Vision & Strategy



Technical Leadership



Market & Competitor Analysis



Research & Development



Project Management – National & International



Stakeholder Management



Operational Strategy



Regulatory Requirements – National & International



Team Building & Leadership



Career Timeline



Work Experience

Played key role in developing 5 new technologies including inventing 1 Herbal material and 1 GRAS molecule with bio-activity from scratch to commercialization. Collaborating & getting MOUs signed with Liverpool School of Tropical Medicine (UK), University of Glasgow (UK), & KIIT University. Trained in NABL procedures

Credited for successfully steering large-scale field projects on biochemical pesticide products in several countries (Malaysia, Philippines, Myanmar, Sri Lanka, Ghana, Nigeria, Burkina Faso & India)

Apr' 14 – Present

Godrej Consumer Products Ltd., Mumbai as Senior Research Scientist (Advanced Technology and Innovation)

Key Result Areas:

- ▶ Steering the advance technology development & disruptive innovation in household insecticide, home & hygiene care and allied field.
- ▶ Administering and hands-on experience in new product development & scale up, manufacturing trials, technology advancement, business support, product/process improvement, product evaluation (efficacy, assay and analytical studies).
- ▶ Trained in NABL Quality Control procedures (ISO/IEC 17025:2005) and playing the role of Technical Manager for Bioefficacy and Bioanalytical Cell.
- ▶ Developing and driving projects on different aspects of insect and insecticide research in collaboration with LSTM (UK) and University of Glasgow (UK)
- ▶ Formulating strategic plans & tactics for the future product pipeline based on market analysis reports
- ▶ Scope of Work: Home & Hygiene care, Central Bioefficacy Cell, Chemical Insecticide products, Herbal Technologies, GRAS based insecticide, personal and home care product development

Highlights:

- ▶ Played a key role in developing the strategic partnership with national and international universities, R&D institutes, industry and expanding research globally in the field of health and hygiene

Jul' 12 – Mar' 14

EntoGenex Industries SDN BHD, Malaysia as General Manager (Technology)

Key Result Areas:

- ▶ Devised and evaluated cutting-edge technologies (TMOF, Mousticide, EGX 101 etc.) for public health, home & personal care market in collaboration with leading institutes and universities worldwide
- ▶ Played a global role in technological innovation, managing technology acquisition, supervise product trials in different countries
- ▶ Conducted site visits, provided operational guidance, drafted protocols and convening meetings of key stakeholders
- ▶ Contributed to long-term sustainability & impact by instituting new strategies, collaborations and implementation plans

May' 10 – Jun' 12

National Centre for Disease Control (Ministry of Health & FW, Govt. of India), Delhi as Deputy Assistant Director

Key Result Areas:

- ▶ Drove research on Medical Entomology, Public Health, Ento-epidemiology, Vector-Borne Disease Biology and Control

Merit of being the youngest member of Cabinet Secretary Committee for monitoring & controlling dengue in 2010 – 2011

- ▶ Rendered services as a member of the team for disease outbreak investigation constituted by central government time-to-time from 2010-2012
- ▶ Functioned as Principal Investigator of the many projects on vector-borne diseases and control focused on the disease surveillance, entomological measures of risk, role of different mosquitoes in the transmission of diseases through classical, immunological, and molecular tools, ento-epidemiological analysis of disease epidemics
- ▶ Performed fieldwork related responsibilities include conducting, supervising experiments to reduce malaria transmission, designing and implementing trials of vector control tools in remote areas
- ▶ Taught medical entomology and national training programs on medical entomology as Faculty for National Master of Public Health (MPH) courses
- ▶ In-charge of insecticide laboratories to conduct the evaluation of new molecules and also commercial household and public health insecticide products before their registration to CIB & RC (India)

Jan' 05 – Apr' 10

Defence Research Laboratory, Tezpur (DRDO, Ministry of Defence, Govt. of India) as JRF, SRF & Research Scientist

Key Result Areas:

- ▶ Performed research on biodefense, vector surveillance, bio-toxicity, molecular biology, genomics, insecticide resistance, biological and chemical insecticides molecules; biochemical analysis, detoxifying enzyme profiling to understand the mechanisms of metabolic resistance
- ▶ Scope of research: Molecular biology of insecticide resistance and the understanding of the target site mediated resistance mechanism such as the role of single nucleotide polymorphisms like knockdown resistance (KDR) in developing resistance phenotype
- ▶ Developed a novel Real-Time PCR assay based on Melting Curve Analysis using a single-labelled probe for high-throughput genotyping of mutations
- ▶ Studied the genetic polymorphisms in voltage-gated sodium channel in mosquitoes to understand the molecular evolution of VGSC protein
- ▶ Developed the three-dimensional model of insecticide binding domain of mosquito's voltage-gated sodium channel and studied the insecticide interaction through structure-function modelling
- ▶ Worked on the fatty acid profiling and molecular taxonomy and phylogeny of bio-diesel potential microalgae using GC-MS and rRNA secondary structure along with Compensatory Base Change (CBC) analysis respectively

Recognised as the first person to report *KDR* insecticide resistance phenotype in mosquitoes

Education & Credentials



- 2010 Doctor of Philosophy (Ph.D.)** Science (Specialization: Chemical Ecology, Medical & Molecular Vector Biotechnology & Neurogenomics) from Defence Research Laboratory (DRDO) & Gauhati University, Guwahati
- 2004 Master of Science (M.Sc.)** in Zoology, Insect Anatomy, Physiology and Applied Entomology from University of Burdwan, West Bengal
- 2001 Bachelor of Science (B.Sc.; Hons),** Zoology/Animal Biology from University of Burdwan, West Bengal

Certifications

- ▶ DRDO Continuing Education Programme on Bio-statistical Methods in Life Science from Defence Research Laboratory (DRDO), Tezpur (Assam) in 2009
- ▶ DRDO Continuing Education Programme on Molecular Approaches in Disease Diagnosis from Defence Research Laboratory (DRDO), Tezpur (Assam) in 2006

Courses

- Laboratory Management System as per ISO/IEC 17025:2005 (2017)
- Measurement of Uncertainty in Testing as per ISO/IEC 17025:2005 (2016)
- Awareness Session on Laboratory Management System as per ISO/IEC 17025:2005 (2016)
- Leading Business: Strategies and Finance in Godrej (2015)
- Influencer Training: New Science to Leading Change in Godrej (2014)
- Interview Skills: Becoming an Interviewer in Godrej (2014)
- Leading Self: Journey of Personal Growth in Godrej (2014)
- Basic Techniques in Management of Mosquitoes and Mosquito-Borne Diseases in DRDO (2008)
- Molecular Biological Techniques in Indian Institute of Chemical Biology (CSIR) (2006)
- Development of Insecticide Resistance Insectary and Bio-toxicity Assay in DRDO (2005)

Professional Affiliations

Mohan Lal Sukhodia University, Udaipur

Member of M.Sc. Course Curriculum Modulator Committee (February 2017 to Present)

KIIT University, Bhubaneswar

Adjunct Faculty (School of Biotechnology) and PhD Research Guide (February 2017 to Present)

EpiCore

Certified EpiCore Member (April 2016 to Present)

European Centre for Disease Prevention and Control (ECDC), Sweden

External Expert (January 2014 to Present)

WebmedCentral, England (United Kingdom)

Advisory Board Member (April 2012 to Present)

WebmedCentral Plus, England (United Kingdom)

Specialty Editor (Bio) (April 2012 to Present)

Journal of Entomology and Nematology, Kenya

Associate Editor (August 2009 to Present)

Journal of Biopesticide, India

Editorial Board Member (July 2010 to February 2013)

Journal of Biofertilizers and Biopesticides, USA

Editorial Board Member (June 2011 to Present)

South Asian Journal of Experimental Biology, India

Guest Editor (May 2011 to April 2012)

Personal Details

Date of Birth: 1st December, 1979

Languages Known: English, Hindi, Bengali & Assamese

ANNEXURE

Projects (Non-confidential)

New Product and Technology Development in Household Insecticide, Home and Hygiene Care Category

April 2014 – Present

Evaluation of Mosquito Electrocuting Trap (MET) Technology in India (In collaboration with University of Glasgow, UK & Ifakara Health Institute, Tanzania)

January 2017 to Present

(Funded by International Knowledge Exchange Fund, University of Glasgow (UK))

MRC (UK) Funded CiC Project: Development of Field Diagnostic Kits for Insecticide Resistance

July 2015 to Present

(Medical Research Council (UK) Confidence in Concept Fund 2015 Tropical Infectious Disease Consortium: Expanding and Accelerating Product Development Collaboration with LSTM and other international institute and Universities. I am the Co-PI of the project)

Evaluation of Insect Control Product (Biochemical pesticide) against mosquitoes in Philippines, Ghana, Myanmar and Malaysia

2013 to Present

Insecticide Resistance in *Culex quinquefasciatus* with Reference to Biochemical and Molecular Mechanisms

June 2006 to April 2010

Studies on the Role of Certain Anophelines in the Transmission of Malaria in Arunachal Pradesh, India

July 2010 to May 2012

(Funded by National Centre for Disease Control, MOHFW India)

Ento-epidemiology Measures of Risk of Vector Borne Disease in Northeast India

January 2011 to May 2012

(Funded by National Centre for Disease Control, MOHFW India)

Biotechnological Approach to Contain Disease, Vectors with Molecular Tools and GIS

January 2005 to February 2010

(Funded by Defence Research Laboratory, DRDO, MOD India)

Publications

Mosquito larval diet impacts on development, growth, and survival of mosquitoes in artificial rearing condition

Submitted, under peer-review

Development of bioassay methods for testing efficacy of volatile insecticide molecules

Submitted, under peer-review

Pharmacognostic characterization and mosquitocidal efficacy of some herbal essential oils and its derivatives

Under communication

Comparative bio-toxicity assays of multiple polyfluorobenzyl and conventional pyrethroids against mosquito reveals differential bio-response and PBO synergism

Journal of Economic Entomology 2017, Accepted

Fluorescent marked mosquito offer a method for tracking and study mosquito behaviour

International Journal of Mosquito Research 2017, 4(6): 05-09

In Silico Modeling of Voltage-gated Sodium Channel Alpha Subunit to Understand Insecticide Binding Simulation in Mosquitoes

Journal of Mosquito Research Vol.5, No.23, 1-8 2015

Ento-epidemiological Characterization of Dengue in Uttarakhand (India)

Journal of Mosquito Research Vol.5, No.17, 1-10 October 26, 2015

Botanical Pesticides: Current Challenges and Reverse Pharmacological Approach for Future Discoveries

Biofertil Biopesticide/OMICS, August 11, 2014 doi: 10.4172/2155-6202.1000e125

Surveillance of *Aedes aegypti* (L.) Mosquitoes in Mumbai International Seaport (India) to Monitor Potential Global Health Risks

Journal of Insects June 29, 2014

Mosquito Reproductive Capacity Model and the Impact of Different Intervention Techniques Reveal that a Quantum Leap Biolarvicide Technology can address this Global Challenge

Journal of Biofertilizers and Biopesticides (OMICS): 4:e116. doi: 10.4172/2155-6202.1000e116 December 26, 2013

Fatty acid profiling and molecular characterization of some biodiesel potential freshwater microalgae from India

New Biotechnology (Elsevier), 29 (3), 332-344 2012

Understanding Evolutionary Paradigm of Knockdown Resistance in Mosquitoes by Analyzing DNA Sequence Polymorphisms in Voltage-gated Sodium Channel in *Culex quinquefasciatus*.

All Result Journal: Biol, 1 (2), 1-7 2011

Multiple Insecticide Resistance/Susceptibility Status of *Culex quinquefasciatus*, Principal Vector of Bancroftian Filariasis from Filaria Endemic Areas of Northern INDIA.

Asian-Pacific Journal of Tropical Medicine (Elsevier), 4 (6), 426-429 2011

High-throughput Approach to Detection of Knockdown Resistance (KDR) Mutation in Mosquitoes, *Culex quinquefasciatus*, Based on Real-time PCR using Single-Labelled Hybridisation Probe/Melting Curve Analysis.

Pest Management Science (Wiley) 67 (2): 156–161 2011

Bio-terrorism on Six Legs: Insect Vectors are the Major Threat to Global Health Security.

WebmedCentral PUBLIC HEALTH 1(12):WMC001282 2010

Insecticide Resistance and Detoxifying Enzyme Activity in the Principal Bancroftian Filariasis Vector, *Culex quinquefasciatus* from Northeastern India.

Medical and Veterinary Entomology (Wiley), 23, 122–131 2009

Molecular Analysis of Knockdown Resistance (KDR) Mutation and Distribution of KDR Genotypes in a Wild Population of *Culex quinquefasciatus* from India.

Tropical Medicine and International Health (Wiley), 14 (9), 1097–1104 2009

Development of Physiological Resistance and its Stage-Specificity in *Culex quinquefasciatus* after Selection with Deltamethrin from Assam, India.

Memorias Instituto Oswaldo Cruz 104 (5), 673-677 2009

Molecular Entomology in Vector Management: Current Trends and Future Avenues.

Training Manual, Basic Techniques in Management of Mosquitoes and Mosquito Borne Diseases, DRL (DRDO), YVS Rao (ed.) Tezpur, Assam, India 2008

Hands on Training Manual for Entomological Surveillance of Vector Borne Diseases.

Training Manual for IDSP Entomologist, NCDC, Delhi, India. 2011