

## Scientist Profile

Name Dr. V. N. Azger Dusthacker  
Designation Scientist C  
Date of Birth 8<sup>th</sup> May, 1973  
Date of Joining 20<sup>th</sup> July, 1998  
Date of joining present post 1<sup>st</sup> September, 2017  
Discipline Microbiology  
Address (off.) including Contact Number\* Department of bacteriology,  
National Institute for Research in Tuberculosis,  
No.1, Mayor Sathyamoorthy road, Chetpet,  
Chennai-600031  
9677234426  
Address (resi.) including Contact Number\* Plot no:47, Nethaji street,  
Santhosapuram,  
Chennai-600073

Email address\* [azger@nirt.res.in](mailto:azger@nirt.res.in), azgar\_007@hotmail.com

\* Mandatory

### Educational Qualifications (*begin with descending order*)

DEGREE	INSTITUTION AND LOCATION	YEAR(s)	FIELD OF STUDY
PhD	University of Madras	2011	Microbiology
MSc	Punjab Technical University	2004	Clinical Microbiology
BSc	JIPMER, Pondicherry university	1993	Medical laboratory Technology

### 1. Research Experience

Development of Phage based diagnostic assay for *M. tuberculosis*

Developing and assaying bio-activity of new compounds against active and dormant tubercle bacilli using Wayne's model.

Determination of suitable transport and suspending media for live mycobacterial cultures and the results have been communicated for publication.

Developed an alternative sputum processing method using chitin for the isolation of *Mycobacterium tuberculosis*.

We have analyzed the killing efficiency of five lytic mycobacteriophages using *in vitro* methodology and further corroborated with bioinformatics analysis.

Developed a simple direct method for early detection of drug resistance in tuberculosis, using LRP.

## 2. Membership/Fellowship of Professional Societies/Associations :

Life member of the society for Bio-safety, HSADL, Bhopal. **Membership No :LM0084/2011**

## 3. Workshops/Conferences/Symposiums

### **Papers Presented:**

#### **National:**

1. “Development of Luciferase reporter phages(LRP) for rapid diagnosis of M. tuberculosis” At 5<sup>th</sup> national conference of Indian Association of Applied Microbiologist, organized by Sri Sankara Arts and Science College, **Kanchipuram**- 11-12 of January 2007
2. “Development of LRPs aiding in the diagnosis of Dormant Tubercle Bacilli” at 61<sup>st</sup> National Conference on Tuberculosis and chest diseases from 23.2.07 to 25.02.07, at **Udaipur** conducted by the Tuberculosis Association of India
3. Participated in National Symposium on Glacial Overview of Tuberculosis and delivered a lecture on “**Dormancy & Luciferase reporter phage assay**” organized by St. James Pharmaceutical College, **Kerala** during 23<sup>rd</sup> and 24<sup>th</sup> March 2009.
4. “Early diagnosis of tuberculosis by luciferase reporter phages” at 64<sup>th</sup> National Conference on Tuberculosis and chest diseases from 27.12.09 to 29.12.09, at **Kolkatta** conducted by the Tuberculosis Association of India

#### **International:**

1. Poster presented at **SAARC** Second Conference on TB, HIV/AIDS & Respiratory Diseases held on 15<sup>th</sup> - 18<sup>th</sup> December 2008 at **Kathmandu, Nepal**, titled “Improved diagnostic LRP assay for detecting active and non-replicating tubercle bacilli”

#### **Training and symposiums attended:**

Undergone a course on **Hazardous waste Management course** at Albert Einstein College of Medicine in **New York**

Attended **scientific writing workshop** conducted by **University of Alabama**, held at TRC from 21.08.07 to 24. 08.07

Was one of the **lead speakers** in the 96<sup>th</sup> meet of the science club, **CLRI**, Institute of Mathematical Sciences, Chennai on Aprils 4<sup>th</sup> 2009 and presented a topic titled “Mycobacterial Dormancy and Luciferase Reporter Phage Assay”

Patent filed for Luciferase reporter phage assay using lysis inhibition (LIN).Indian Patent Application No.: 2530/DEL/2010 Date of filing: 22/10/2010

Attended a WHO sponsored workshop on Bio-safety and bio-security at High security animal diseases laboratory, Bhopal from 17<sup>th</sup> august to 19<sup>th</sup> August 2011

Successfully completed the online course “Health in Numbers: Quantitative Methods in Clinical Public Health Research” conducted by Harvard university, on Feb, 2013

Attended a workshop, train the trainers titled ‘Culture of Responsibility’ conducted by American Society of Microbiology at NIMS, Hyderabad from 19<sup>th</sup> to 20<sup>th</sup> April, 2014.

Attended a workshop in Pharmaco vigilance drafting from 4<sup>th</sup> to 5<sup>th</sup> March, 2016 at NIRT, Chennai

Attended a pre-conference workshop in “Bioinformatics: Basics and Insights in NGS data analysis” at PGIMER Chandigarh from 10<sup>th</sup> to 11<sup>th</sup> March 2016

Participated in the International symposium on “Integration of genetics and genomics in laboratory medicine’ from 12<sup>th</sup> to 13<sup>th</sup> March, 2016 atPGIMER, Chandigarh

Completed the training programme on “Quality management systems and internal audit in Medical laboratories as per ISO 15189:2012”, held at NITRD, New Delhi from 24<sup>th</sup> May to 27<sup>th</sup> May 2017.

Attended a workshop in “Genetics in Public Health” conducted by Public health Foundation of India from 26<sup>th</sup> May to 2<sup>nd</sup> June 2017 at Gurgaon.

Attended a workshop on “Principles and practice of clinical research” conducted under Indo US Vaccine Action programme from 15<sup>th</sup> April to 21<sup>st</sup> April, 2018 at Hyderabad.

Delivered a talk on “Global burden and challenges in latent Tuberculosis” upon invitation at Centre for drug discovery and development” at Sathyabama Unversity on 7<sup>th</sup> April, 2017.

Delivered a talk on “Recent trends in antimicrotobial screening’ at the National conference in biomaterials and medicinal chemistry” in The school of Chemistry department at Madurai Kamarajar University from 12<sup>th</sup> to 13<sup>th</sup> April, 2017.

Attended a hands-on training in Microtitre DST at San Rafaele scientific Institute, Milan, Italy from 13<sup>th</sup> June to 15<sup>th</sup> June 2016.

#### 4. Awards

Availed a **Graduate Researcher** position in **Albert Einstein College of Medicine in New York for a period of 9 months** from June' 2005 to Feb '2006

Received Dr. C. Srinivasa Rao award for the **best paper award** on Tuberculosis by an young scientist from Tuberculosis Association of India for presenting a paper titled "Early diagnosis of tuberculosis by luciferase reporter phages" in NATCON 2009 held at Kolkatta

Was granted a partial **travel grant** by ICMR for poster presentation at **SAARC** Second Conference on TB, HIV/AIDS & Respiratory Diseases held on 15<sup>th</sup> - 18<sup>th</sup> December 2008 at Kathmandu, **Nepal**

Awarded an ICMR-IIT Kharagpur MedTech internship for a period of eight weeks at IIT Kharagpur under the mentorship of Prof. Suman Chakraborty of Mechanical engineering department of IIT Kharagpur form 8<sup>th</sup> May to 3<sup>rd</sup> July 2016.

Awarded Rs 2 lakh for developing the prototype for the proposed design titled "microfluidics in development of rapid TB diagnosis" under ICMR IIT Kharagpur Internship program from 1<sup>st</sup> November 2016 for a period of 9 months.

#### 5. Miscellaneous

Was one of the team for the **DRS** study implementation in the state of **Madhya Pradesh held at Jabalpur**

Deputed as a **facilitator** for the training programme in Drug Resistance survey (DRS) held at **National tuberculosis Institute, Bangalore** from 25.10.04 to 05.11.04.

Was one of the **resource person** in A Regional workshop- symposium to enhance HIV/AIDS Research Capacity conducted at **JNCASR of AIDS in INDIA-2007** from 8.07.07 to 13.07.07

#### **Book chapters:**

- Contributed a review on Biosafety in Mycobacteriology which appeared in the WHO TDR training manual on "Biosafety for human health and the environment in the context of the potential use of genetically modified mosquitoes (GMMs)", published in the year 2015. Dr. N. Selvakumar was the corresponding author. <http://www.who.int/tdr/publications/biosafety-gmm/en/>

- Ameer Khusro, Chirom Aarti, **Azger Dusthacker**, Paul Agastian. Anti-tubercular potentiality of medicinal plants: An initiative to combat the era of drug resistant bacteria. *Phytochemistry and Pharmacology of Medicinal Herbs*. ISBN:9789385995460, Edition: 1, 2017

## 6. Publications

1. AmeerKhusro, ChiromAarti, **Azger Dusthacker**, PaulAgastian. Enhancement of anti-tubercular activity and biomass of fermented food associated *Staphylococcus hominis* strain MANF2 using Taguchi orthogonal array and Box-Behnken design. [Microbial Pathogenesis](#). [Volume 120](#), July 2018, Pages 8-18. **Impact factor:2.332. Cite score: 2.36**
2. P. Manikandan, K. Rajasekar, V. N. **Azger Dusthacker**, B. Mahizhaveni and C. Veerave. Synthesis, Characterization, DNA Binding, DNA Cleavage and Antimycobacterial Studies of Cu(II) Complex with Isoniazid and Oxalate ion. *Journal of Chemistry and Chemical Sciences*, Vol.8(5), 810-817, May 2018 **Impact factor: 4.525**
3. Rajendran Amarnath Praphakar, Harshavardan Shakila, **Vijayan N. Azger Dusthacker**, Murugan A. Munusamy, Suresh Kumar, Mariappan Rajan. Mannose conjugated multi-layered polymeric nano carrier system for controlled and targeted release on alveolar macrophages. *Polymer Chem*, 2017DOI: 10.1039/C7PY02000G, Issue 5, 2018. **Impact factor : 5.375**
4. [Ameer Khusro](#), [Chirom Aarti](#), [Azger Dusthacker](#), [Paul Agastian](#). Anti-tubercular and probiotic properties of coagulase-negative staphylococci isolated from *Koozh*, a traditional fermented food of South India. [Microbial Pathogenesis](#). Available online 28 November. **Impact factor:2.009** 2017.<https://doi.org/10.1016/j.micpath.2017.11.054>
5. A. NusrathUnissa, V.N. **Azger Dusthacker**, Micheal PremKumar, P.Nagarajan, S.Sukumar, V. IndiraKumari, A. RamyaLakshmi, L.E.Hanna. Variants of *katG*, *inhA* and *nat* genes are not associated with mutations in efflux pump genes (*mmpL3* and *mmpL7*) in isoniazid-resistant clinical isolates of *Mycobacterium tuberculosis* from India. *Tuberculosis*, Volume 107, December 2017, Pages 144-148. **Impact factor :2.873**
6. Rajan Mariappan; Rajendran Amarnath Praphakar; Abdulla A. Alarfaj; Murugan A Munusamy; V. N. **Azger Dusthacker**; S Suresh Kumar. Phosphorylated κ-Carrageenan-Facilitated Chitosan Nanovehicle for Sustainable Anti-Tuberculosis Multi Drug Delivery. 22 August 2017. DOI: 10.1002/slct.201701396
7. Geetha Ramachandran, AK Hemanth Kumar, V Chandrasekaran, T Kannan, R Vijayalakshmi, VN **Azger Dusthacker**, K Ramesh, J Lavanya, Soumya Swaminathan. [Factors influencing tuberculosis treatment outcome in adult patients treated with thrice-weekly regimens in India](#). *Antimicrobial Agents and Chemotherapy*. 2017/ 03. 02464-16. **Impact factor: 4.476**
8. Narender Malothu, Jaswanth S. Bhandaru, Umasankar Kulandaivelu, Malathi Jojula, Raghuram Reddy Adidala, Umadevi K. R, **Dusthacker A. V. N**, Venkat Rao Kaki, Raghuram R. Akkinepally Synthesis, in vitro antimycobacterial evaluation and docking studies of some new 5,6,7,8-tetrahydropyrido[4,3-b]thieno[2,3-d] pyrimidin-4(3H)-one schiff bases. *Bioorganic & Medicinal Chemistry Letters* 26 (2016) 836–840. **Impact factor 2.4**
9. **Azger Dusthacker**, Gomathi Sekar, Shambhavi Chidambaram, Vanaja Kumar, Pranav Mehta & Soumya Swaminathan, Drug resistance among extrapulmonary TB patients: Six years experience from a supranational reference laboratory. *Indian J Med Res* 142, November 2015, pp 568-574. **Impact factor:1.396**

10. **Azger Dusthacker VN**, Radhakrishnan R, Nagarajan P, Ponnuraja C, Vanaja Kumar, Selvakumar N. Phosphate buffered saline for transport of *M. tuberculosis* cultures. *Indian Journal of Applied Microbiology* Volume 18 Number 1 July-December 2015, pp. 1-4
11. **V.N. Azger Dusthacker** , P. Nagarajan , Dasarathi Das , Vanaja Kumar a, N. Selvakumar Retrieval of Mycobacterium tuberculosis cultures suspended in phosphate buffered saline. *International journal of Mycobacteriology*, 1 ( 2 0 1 2 ) 1 4 9 –1 5 1.
12. **Dusthacker VN**, Balaji S, Gomathi NS, Selvakumar N, Kumar V. Diagnostic luciferase reporter phage assay for active and non-replicating persistors to detect tubercle bacilli from sputum samples. *Clin Microbiol Infect.* 2011 May 31. 2012 May;18(5):492-6 Two citations. Impact factor: 4.578.
13. **Dusthacker A**, Kumar V, Subbian S, Sivaramakrishnan G, Zhu G, Subramanyam B, et al. Construction and evaluation of luciferase reporter phages for the detection of active and non-replicating tubercle bacilli. *J Microbiol Methods.* 2008 Apr;73(1):18-25. Twenty citations. Impact factor: 2.506 (5 year), 2.161 this year
14. **Dusthacker A**, Hassan VN, Kumar V. Tape measure protein having MT3 motif facilitates phage entry into stationary phase cells of Mycobacterium tuberculosis. *Comput Biol Chem.* 2008 Oct;32(5):367-9. Two citations. Impact factor: 1.596 (5 year), 1.793 this year
15. Balaji Subramanyam, **Azger Dusthacker**, Fathima Rehman, Gomathi Sekar, Gomathi Sivaramakrishnan, Vanaja Kumar. An alternative sputum processing method using chitin for the isolation of *Mycobacterium tuberculosis*. *World J Microbiol Biotechnol* 2010 26:523–6. Impact factor 1.262
16. Sameer Hassan, **Azger Dusthacker**, Balaji Subramanyam, C. Ponnuraja, Gomathi N. Sivaramakrishnan and Vanaja Kumar. Lytic Efficiency of Mycobacteriophages., *The Open Systems Biology Journal*, 2010 3, 21-28.
17. Kumar V, Loganathan P, Sivaramakrishnan G, Kriakov J, **Dusthacker A**, Subramanyam B, et al. Characterization of temperate phage Che12 and construction of a new tool for diagnosis of tuberculosis. *Tuberculosis (Edinb).* 2008 Nov;88(6):616-23. Thirteen citations. Impact factor: 3.036 (5 year), 3.033
18. Gomathi NS, Sameer H, Kumar V, Balaji S, **Dusthacker VN**, Narayanan PR. In silico analysis of mycobacteriophage Che12 genome: characterization of genes required to lysogenise Mycobacterium tuberculosis. *Comput Biol Chem.* 2007 Apr;31(2):82-91. Five citations, Impact factor: 1.596 (5 year), 1.793
19. Subramanyam B, Sivaramakrishnan G, **Dusthacker A**, Nagamiah S, Kumar V. Phage lysin as a substitute for antibiotics to detect Mycobacterium tuberculosis from sputum samples with the BACTEC MGIT 960 system. *Clin Microbiol Infect.* [Volume 18, Issue 5](#), pages 497–501, May 2012. Impact factor: 4.578.
20. Subramanyam B, Sivaramakrishnan G, **Dusthacker A**, Kumar V Phage lysin to control the overgrowth of normal flora in processed sputum samples for the rapid and sensitive detection of *Mycobacterium tuberculosis* by luciferase reporter phage assay. *BMC Infectious Diseases* 2013, **13**:44. Impact factor 3.03

21. Ranjani Ramachandran, Soumya Swaminathan, Sulochana Somasundaram, **V.N. Asgar**, P Paramesh and CN Paramasivan “Mycobacteremia in Tuberculosis patients with HIV infection” published in the Indian Journal of Tuberculosis. Ind J Tub, 2002, 50, 29. Fourteen citations.
22. Mathew S, Nalini SM, Rahman F, **Dastageer A**, Sundaram V, Paramasivan CN. Simple direct drug susceptibility tests on sputum samples for early detection of resistance in tubercle bacilli. Indian J Tuberc. 2007 Oct;54(4):184-9.