The work embodied in the thesis has been carried out in Acharya Narendra Dev College, University of Delhi, Delhi. This work is original and has not been submitted in part or in full to this or any other university for any degree or diploma.

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I hereby certify that the research work entitled "Studies on the efficacy of Mexican Prickly Poppy, Argemone mexicana (Papaveraceae) as the potential control agent of an Indian strain of Dengue vector, Aedes aegypti L. (Diptera: Culicidae)" was conducted at the Acharya Narendra Dev College, University of Delhi. The thesis is my original work and has not been submitted in part or full in any other Institute and University for degree or diploma. To the best of my knowledge and belief, it does not contain any published and written material from other sources, cited work for references.

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I hereby certify that the work reported in the Ph.D. thesis entitled "Evaluation of bioefficacy of Thevetia neriifolia extracts on the growth and development of Helicoverpa armigera (Lepidoptera: Noctuidae)" submitted at the Department of Zoology, University of Delhi is an authentic record of my work carried out under the supervision of Dr. Sarita Kumar and Dr. Kamal Kumar Gupta. I have not submitted this work elsewhere for any other degree or diploma.

I am fully responsible for the contents of my Ph.D. Thesis.

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The present work entitled "Microbial extracellular enzymes: Purification, Molecular characterization and Applications" embodied in this thesis has been carried out at Acharya Narendra Dev College, University of Delhi. Delhi. The work is original and has not been submitted in part or in full to this or any other university for any degree or diploma.

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This is to certify that the thesis entitled "Synthesis, Evaluation and Characterization of Phyto-mediated Silver Nano-composites against Indian strain of Dengue vector Aedes aegypti L. (Diptera: Culicidae)" submitted by Ms. Aarti Sharma, for the award of Doctor of Philosophy in Life Sciences is a bonafide work carried by her under my supervision and guidance. No part of this thesis fully or partly has been submitted previously to this or at any other University/Institution for the award of any Research Degree/Diploma.

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FORWARDED FOR EVALUATION

# SYNTHESIS AND EVALUATION OF NOVEL FLUORESCENT HETEROCYCLIC CHEMOSENSORS

Thesis Submitted to the University of Delhi for the Award of the Degree of

#### **DOCTOR OF PHILOSOPHY**

in

#### **CHEMISTRY**

By

SHYAM I



DEPARTMENT OF CHEMISTRY
UNIVERSITY OF DELHI
DELHI-110007
INDIA
JUNE, 2018

रक्रिया एवं सम्बद्ध विज्ञान संस्थान (डिपास)

रकार, रक्षा मंत्रालय रुसंघान एवं विकास संगठन रोड, तिमारपुर, दिल्ली-110 054



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#### **CERTIFICATE**

This is to certify that the thesis, entitled "Anti-Chikungunya Effects of Andrographolide: Inhibition of Viral Replication and Associated Inflammation" submitted to the Bharathiar University, in Partial fulfillment of the requirements for the award of the Degree of Doctor of Philosophy in Life Sciences is a record of original research work done by Ms. Swati Gupta during the period 2013-2018 of her research in the Department of Immunomodulation at Defence Institute of Physiology and Allied Sciences, Timarpur, Delhi under my supervision and guidance and the thesis has not formed the basis for the award of any Degree/Diploma/Associateship/Fellowship or other similar title of any candidate of any University.

Just 29.6:18

Dr. Lilly Ganju, Sc. 'G' (Supervisor/ Head of the Department)

डा. लिटली गंजू/Dr. Lilly Ganju वैज्ञानिक 'जी' सह निदेशक/Scientist 'G'/Associate Director रक्षा शरीरक्रिया एवं सम्बद्ध विज्ञान संस्थान Defence Institute of Physiology and Allied Sciences रक्षा मंत्रालय (र.बनु. एवं वि. संगठन)/Ministry of Defence (DRDO) लाखनक मार्ग, तिगारपुर, दिल्ली—1 1 0 0 5 4 Lucknow Road, Timanpur, Delhi-110654

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त्राचार निदेशक, डिपास को संबोधित करें / All correspondence should be addressed to Director, DIPAS

The work embodied in the thesis entitled "Ciliates as Cellular Tool to Access Heavy Metal Toxicity" is original and has been carried out under the supervision of Dr Seema Makhija and Dr Ravi Toteja at Ciliate Biology Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, New Delhi- 110019, Delhi, India. This work is original and has not been submitted in part or full to this or any other University for any degree or diploma.

Date: 12.02.2020

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This is to certify that the thesis entitled "Fabrication of Graphene Oxide Membranes for their Potential Use in Water Purification Applications" being submitted by Mr. Shani Kumar to the University of Delhi, Delhi for the award of the degree of Doctor of Philosophy in Electronic Science is record of bonafide research work carried out by him in the Department of Electronic Science, University of Delhi, South Campus, New Delhi, India. The research reports and the results presented in this thesis have not been submitted in parts or in full to any other University or Institute for the award of any other degree or diploma.

SHANI KUMAR

(University Enrol. No. AND-99/08)

(Candidate)

This is to certify that the above statement made by the candidate is correct to the best of our knowledge.

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Associate Professor

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University of Delhi, New-Delhi-110019

PROF. MRIDULA GUPTA

(Head)

Professor

Department of Electronic Science University of Delhi South Campus

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The work embodied in the thesis entitled "Taxonomy, Phylogeny and Molecular Systematics of Ciliates from Delhi, India" is original and has been carried out under the supervision of Dr. Seema Makhija and Dr. Renu Gupta at Ciliate Biology Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, New Delhi-110019, Delhi, India. This work is original and has not been submitted in part or full to this or any other University for any degree or diploma.

Date: 12 03 2021

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दिल्ली—110007 / Delhi-110007

Certified that the thesis entitled "Development of a one-pot assay for screening multi-target inhibitors of Mur enzymes of Mycobacterium tuberculosis" submitted by Mr. Eniyan K at Dr. B. R. Ambedkar Center for Biomedical Research, University of Delhi is a record of research work carried out by him for the degree of Doctor of Philosophy under my guidance at Antimycobacterial drug discovery lab, Department of Biomedical Science, Acharya Narendra Dev College, University of Delhi.

This thesis is an original work of the candidate and has not been submitted, in part or full, for any other degree, diploma or fellowship in any university or institution. No portion of this thesis is reproduction from any other source, published or unpublished, without acknowledgement.

Date: 24.04.2017

Dr. Urmi Bajpai

(Supervisor)

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Prof. Krishnamurthy Natara

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(Candidate)

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## **DECLARATION**

(As required under clause 13 of ordinance VIB of the University of Delhi)

This is to certify that the research work entitled "Design and Synthesis of Graphene oxide and Chitin based Nanomaterials for Water Purification and Biological Application" embodied in this synopsis is an accurate record of the work carried out by Drashya at the Department of Chemistry, Acharya Narendra Dev College (University of Delhi), Kalkaji, New Delhi-110019, under the supervision of Dr. Sunita Hooda. This thesis is original and has not been submitted to this or any other university/institution in full or in part for any degree or diploma. For this reason, she has satisfactorily completed all the courses needed for the degree set out in the University of Delhi Ordinance.

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This is to certify that the research work entitled "Structural analyses of bioactive compounds from Streptomyces spp. and identification of their biosynthetic gene clusters" was conducted in the Microbial Technology Lab, Acharya Narendra Dev College, University of Delhi, New Delhi, India. The thesis is my original work and has not been submitted in part or in full to any other Institute or University for degree or diploma. To the best of my knowledge and belief, it does not contain any published and written material from other sources, except cited work for references.

Date: 15・12・2020

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The work embodied in the thesis entitled "Ciliates as Cellular Tool to Access Heavy Metal Toxicity" is original and has been carried out under the supervision of Dr Seema Makhija and Dr Ravi Toteja at Ciliate Biology Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, New Delhi- 110019, Delhi, India. This work is original and has not been submitted in part or full to this or any other University for any degree or diploma.

Date: 12.02.2020

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The work embodied in the thesis entitled "Taxonomy, Phylogeny and Molecular Systematics of Ciliates from Delhi, India" is original and has been carried out under the supervision of Dr. Seema Makhija and Dr. Renu Gupta at Ciliate Biology Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, New Delhi-110019, Delhi, India. This work is original and has not been submitted in part or full to this or any other University for any degree or diploma.

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Certified that the thesis entitled "Computational Approach for Drug Repurposing in Tuberculosis and Pathway Modeling for Type 2 Diabetes associated Tuberculosis" submitted by Jyoti Rani at Dr. B. R. Ambedkar Center for Biomedical Research, University of Delhi is a record of research work carried out by her for the degree of Doctor of Philosophy under the guidance of Prof Urmi Bajpai and Dr. S. Ramachandran at Institute of Genomics and Integrative Biology.

This thesis is an original work of the candidate and has not been submitted, in part or full, for any other degree, diploma or fellowship in any university or institution. No portion of this thesis is reproduction from any other source, published or unpublished, without acknowledgement.

Date:

(Candidate)

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Dr. S. Ramachandran

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