

ACKNOWLEDGEMENTS

In the first place, I laud the supreme grace-light (அருட்பெருஞ்ஜோதி! தனிப்பெருங்கருணை) for eternal love and grace on me.

*It is my privilege to express my gratitude to **Bharat Ratna Madan Mohan Malviya ji** for his untiring effort to create this holy place of study "Banaras Hindu University".*

*I immensely express my profound gratitude to **Prof. Rajeev Sangal**, Director, Indian Institute of Technology (Banaras Hindu University), Varanasi and various Deans of the institute for providing the basic amenities and sophisticated instrumental facilities for smooth conduct of research.*

*I owe my deepest gratitude and obligation to my supervisor **Dr. Sushil K. Singh**, Professor and Head, Department of Pharmaceutical Engineering & Technology, Indian Institute of Technology (Banaras Hindu University), Varanasi, for his constant motivation, support, valuable suggestions and ideas. I am thankful for his supervisory meetings and masterful work schedules to complete my thesis work within the time frame.*

*I would like to recognize and thank my **Research Progress and Evaluation Committee (RPEC)** members **Dr. S. K. Srivastava**, Professor, School of Biochemical Engineering, and **Dr. A. Senthil Raja** of the department for valuable advice and constructive criticism during evaluation of my research progress. It definitely helped me to proceed in right direction.*

*I render my sincere thanks to **Prof. B. Mishra**, former Head of the Department for giving me an opportunity to conduct research in the department and for providing necessary amenities required for my research work.*

*I am thankful to **Dr. Ashok Kumar**, Senior Research Officer of the department for his unflinching support and motivation.*

*I am also thankful to **Prof. A. K. Srivastava**, **Prof. Sanjay Singh**, **Prof. S. K. Shrivastava**, **Prof. (Mrs.) S. Hemalatha**, **Prof. K. Sairam** and rest of all faculty members of the Department for their support and encouragement.*

*I am sincerely grateful to **Prof. Gopal Nath**, Department of Microbiology, Institute of Medical Sciences, Banaras Hindu University, Varanasi, for permitting me to perform antimicrobial screening of my synthesized compounds in his laboratory.*

*I would also like to convey my thanks to **Dr. Kishore G. Bhat**, Professor and Head, Department of Microbiology, Maratha Mandal's NGH Institute of Dental Sciences & Research Centre, Belgaum for his able guidance in conducting antitubercular screening of my synthesized compounds.*

*I would like to thank **Dr. Jeyakumar Kandasamy**, Assistant Professor, Department of Chemistry, Indian Institute of Technology (Banaras Hindu University) for solving the mystery of difficult chemical reactions.*

*I offer my sincerest gratitude to **Prof. Dirk Bald** of Vrije Universiteit Amsterdam for ATP synthesis inhibition study.*

*I would like thank **Prof. Gregory Cook** of University of Otago, New Zealand for NADH:menadione oxidoreduction assay*

*I also thank all the non-teaching staff of the department, especially **Nandlal ji** for his assistance in using sophisticated instruments of the department.*

*I would like to thank **Mr. Sanjeev and Mr. Yeshwant**, office staff of the department for their frictionless approach in sending scholarship and contingency bills.*

I am grateful to Ministry of Human Resources and Development, Government of India for providing financial assistance in the form of Teaching Assistantship (TA) and contingency to carry out the research work.

I would like to thank the entire esteemed lab member in our group. It was good time to have wonderful lab members (Dr. Dileep Kumar, Dr. Meenakshi Singh, Mr. Devendra Kumar, Mr. Gopichand Gutti, Mr. Ravindray, Mr. Ankit Ganeshpurkar and all others), as they extended huge help in performing difficult chemical reactions, cytotoxicity screening, homology modeling etc. I am indebted to them for sharing their knowledge and experience with me.

I would like to thank my batch mates and all other friends from the department for their unflinching support, care and fun to make my stay more enjoyable.

I would like to extent my gratitude to Dr. Vijaya Kumar M. R. for his unflinching kindness and support during my stay at IIT BHU. I would also like to thank C. K. Balavigneswaran, Uvanesh K. and Yuvraj S. from IIT (BHU), and all other friends from Faculty of Agriculture, BHU for making my life more blissful.

*I would like to thank **my mother** for her unconditional love. You have been my source of support, encouragement, comfort, happiness, protection and lifelong love.*

Finally, I thank everyone who came across my life like a passing cloud to shower happiness to my life.

Date:

(Satheeshkumar S.)

Place: IIT (BHU), Varanasi