ACKNOWLEDGEMENT

This thesis is the result of the work whereby I have been accompanied and supported by many people. It is a pleasant opportunity for me to express my gratitude for all of them.

I would like to express my deepest gratitude to my supervisors Prof. (Mrs.) R. S. Bendre and Dr. Rajesh Dabur for their continuous guidance and encouragement throughout my research. A special mention goes to both for their great help to me during my time in Jalgaon and Pune. Without their endless supply of new ideas, different expertise opinions in related subjects and supportive emotional strength, I could never have submitted this thesis in scheduled time. Their generous attitude, comments have always guided me throughout and made me more disciplined and diligent. Their trust and scientific temperament inspired me in the most crucial moments of making right decisions during research.

I can never fulfil completeness of my thesis without the valuable suggestions and support from Prof. P. P. Mahulikar, Director, School of Chemical Sciences, Jalgaon, Prof. D. H. More, Prof. S. L. Patil, Prof. A. U. Borse, Prof. K. J. Patil, Prof. Mrs. J. S. Meshram, Dr. V. V. Gite, Dr. K. K. Sharma, Dr. D. S. Dalal, Dr. U. D. Patil, Dr. A. S. Kuwar, Mr. A. M. Patil, Mr. K. C. Tayade, Mr. G. R. Gupta and Mr. V. V. Patil.

I am equally thankful to Prof. S. U. Meshram, Hon’ble Vice-Chancellor, North Maharashtra University, Principal Dr. K. B. Patil former Vice-Chancellor, Dr. M. V. Baride former Registrar, Prof. A. M. Mahajan, Registrar, Prof. D. G. Hudiwale, Director, BCUD and Prof. B. V. Pawar, Dean, Science faculty for giving me an opportunity to undertake and complete my research and providing the basic infrastructure for my research work at North Maharashtra University, Jalgaon.

I am grateful to Prof. A. A. Natu (IISER, Pune), Dr. D. G. Naik (ARI, Pune), Dr. S. S. Terdake, Dr. M. V. Kulkarni (University of Pune), Prof. K. S. Jain (S. S. Jondhale College of Pharmacy, Aasangaon) for their kind support.

I am thankful to technical staff of National Research Institute of Basic Ayurvedic Sciences, Dr. T. K. Mandal, Dr. S. D. Pawar, Dr. G. B. Rao as well as our supporting non-teaching staff of NMU, Mr. A. A. Shimpi, Mr. L. K. Tadvi, Dr. N. B. Patil, Mr.
P. K. Patil, Mr. A. A. Aarak, Mr. M. Bhalerao, Mr. V. Dhangar, Mr. K. Sonawane, Mr. Ahire, Miss. V. Udhage, Smt. A. Shinde, Mr. R. Badgujar and Mr. Shashikant Patil for their cooperation during my research work.

I express my gratitude towards my teachers from Prof. Ramkrishna More Arts, Commerce & Science College, Pradhikaran, Akurdi, Pune Dr. D. R. Shinde, Mr. D. B. Avasare, Mr. Kabbadi, Dr. Tambade, Mr. Kolhe, Mr. S. Ekar and those, who inspired me to complete my research work.

I am thankful to senior & junior colleagues Dr. C. M. Zade, Mr. U. D. Pete, Mr. D. P. Mahajan, Mrs. S. C. Zade, Mr. J. B. Shinde, Miss. S. K. Tadavi, Mr. P. S. Karandikar, Mr. C. D. Hadole, Mr. D. L. Ahire, Mr. Shashikant Pawar, Dr. Deepak Ghate, Dr. Anjan Sawale, Mr. Jayesh Gujarathi, Dr. R. S. Sancheti, Dr. Abdul Ahmed, Dr. S. M. Bharambe, Dr. Y. A. Pawar, Dr. P. N. Nagle, Dr. Shyam Bhosale, Dr. Santosh Nalage, Dr. Ajay Nikum, Dr. Kamlesh Desale, Dr. Dipak Patil, Bhikan Khairnar, Dr. Rahul Hedao, Piyush Tatiya, Mahendra Nevare, Mahesh Borane, Avinash Bagle, Mukesh Deshmukh, Sandip Rajput, Abhijeet Anand, Yogesh Wagh, Kamlakar Nandre, Jitendra Nandre, Rahul Mahire, Vilas Mahire, Sandesh Tetzgure, Nilesh Patil, Asha Jangale, Priyanka Kumavat, Ajay Kshirsagar, Mandar Gaikwad, Vasishe Shaikh, Ravindra Marathe, Chandrashekhar Patil, Devendra Raghuvanshi, Kishor Pawar, Deepika Agrawal, Yogesh Tayade, R. Patil, G. Kadam, Rahul Hangarge, Balasaheb Deshmukh, Chandana Roy, S. Padvi, Namdev Ghule, Mahesh Patil, Rupali Patil, Ashok Chaudhari, Ganesh Lonkar, Dipak Bauskar, Ravindra Ladhe, Pankaj Mahajan and Mr. S. Ahire for their help and support during the formative years.

Thanks are also to Mr. Prashant N. Darphale, Mr. Shailendra S. Chitnis, Mr. Milind Khairnar, Mr. Dipak D. More, Mr. Shivraj S. Walke, Mr. Charles Muthu, Dr. Satish Patil, Mr. Soyeb Chaudhari, Adv. Chetan Joshi, Dr. Sanjay Chavan, Mr. Ramanji R. Gutha, Mr. Vilas Patil, Mr. Nilesh Dhande, Mr. Deepak Bhoi, Mr. Ananda Mali, Mr. Pravin Mali, Miss. Ashwini Bendre and Mrs. Komal for friendship and forever support.

My special thanks are to Mrs. Dabur for her kind care and concern about my future. Also I would like to thank Ayush Dabur for cheering me up.
A large number of thanks also go to Mr. Amey R. Shirolkar, Miss. Aarti Raskar and Mr. Tasleem Arif for sharing their microbiological expertise, assisting with experimental techniques of microbiology and useful discussions on related topics.

My special gratitude to Dr. G. P. Jadhav & family (Nottingham University Park, U.K.), Dr. E. V. Bellale (Astra Zenica, Bangalore), who both are the mainstay and much more for my profession as Chemistry. I express gratefulness from bottom of my heart towards my four Mamaji’s & their family, Kusum Mavashi & her family, Mr. Bhagwan B. Navale, Balu Bhaum & family, Sanju Dada & family and all the relatives for their splendid support and back up. I am thankful to my neighbours Mr. S. B. Navale & family, Smt. S. Bhagwat & family, Mr. Khedkar & family, Mr. Tamore & family, Mr. Todkar & family, Mr. Wagh & family, Mr. Y. G. Bhosale & family, Mr. R. D. Bhosale & family and Smt. Agrawal Ajji for each and every support to my family at Pune during my stay in Jalgaon for research.

My family inspired and supported me throughout my accomplishments to pursue higher studies. They are always ready to face any kind of pain, adjustment just for my career. I would like to express my profound sense of appreciation and admiration to my mother- Smt. Lata D. Bhosale, wife- Mrs. Sunita J. Bhosale, Daughter- Kum. Rageeni J. Bhosale, and brother- Mr. Narendra D. Bhosale for their love and great contribution in my education.

Financial help in the form of Research fellowship in Sciences for Meritorious Student, (RFSMS) from University Grants Commission (UGC) and CCRAS, New Delhi for SRF is gratefully acknowledged.

I am thankful to everybody associated with me directly or indirectly for successful accomplishment of my Ph. D. work.

Mr. Jitendra D. Bhosale