ACKNOWLEDGMENT

It gives me huge pleasure to express my gratitude to all those who had helped me during my Ph.D. journey in every possible way.

First and foremost, I express my deep sense of gratitude with all sincerity and high regards to my research guide **Dr. Dharmendra Shah**, The Maharaja Sayajirao University of Baroda for his support, motivation and valuable suggestions. I show appreciation to my guide for giving me freedom to learn, think and work in my own way. For one more thing I feel gratefulness for my guide, who know me who am I, based on that he had given me chance to acquire new skills by my own outlook. This kind of attitude build by you, it's motivating me to work hard and gain knowledge from each and every person from our surroundings. This learning aptitude would have not come within me without your presence.

I wish to thank **Dr. N.S.R. Krishnayya**, Head Department of Botany and former Head, **Dr. Sandhya Kiran Garge** for providing all the laboratory facilities to carry out research work.

I am thankful to **Dr. P. S. Nagar**, The Maharaja Sayajirao University of Baroda for giving me opportunity to work in his research project in that way I got financial assistance in my initial phase of this journey and also for providing some lab facilities.

It is my heartfelt gratitude and thanks to **Dr. Kishore Rajput**, The M. S. University of Baroda for his kind support and allowing me to work and provide necessary facilities for culturing, molecular and few microscopy study in his laboratory.

I also thankful to Head of the Archeology Department (Former Head, **Prof. K. Krishnan** and **Prof. Ajithprasad P**), The Maharaja Sayajirao University of Baroda for permitting to carry out samples collection and *in vivo* experiment on the dome of the arts faculty building.

I want to thank former **Prof. Shishir Raval**, Department of Architecture and **Prof. Saxena Adhya**, Department of History for providing some information.

I would also like to thank few teachers (**Prof. A. V. Joshi**, **Prof. Satish Patel** and **Prof. M. A. Limaye**) and a research scholar (**Dr. Aditya Joshi**) of Geology Department, The Maharaja Sayajirao University of Baroda for assist me in geology study.

I am greatly obligated to **Prof. Anjali Patel**, Head and **Prof. Padmaja Pamidimukkala** of the Chemistry Department for approving usage of flame photometer. I am also gratified to **Dr. Hemant Soni**, Associate professor for teaching me XRD data analysis and **Dr. Arpita Desai**, Assistant professor for allowing me to use her lab for few study and for her valuable suggestions. I am greatly indebted to **Dr. Vandana Rao**, Associate professor and **Mr. Amit Trivedi**, Lab Technician, Department of Metallurgical and Materials Engineering, The Maharaja Sayajirao University of Baroda for help in the XRD study.

It is my pleasant duty to express my gratefulness to **Prof. Archana Gattupalli**, Head of Microbiology Department, The Maharaja Sayajirao University of Baroda to provide necessary departmental central facilities.

I wish to thank **Prof. Pushpa Robin**, Joint Director, Dr. Vikram Sarabhai Institute of Cell and Molecular Biology, The Maharaja Sayajirao University of Baroda for making availability of the central student facilities regarding molecular study.

I am thankful to Superintendent Archeologist (**Dr. K. Krishna Murthy**) and other staff members (**Mr. Shubham Malik**, **Mr. Ashish** and **Ms. Rashmi**) of the Archeology Survey of India (ASI), Vadodara circle to cooperate and necessary permissions to visit ASI, Vadodara circle library and to carry out fieldwork.

I am appreciative to **Mr. Akshay Charegaonkar**, Director and the team members (**Dr. Saikat Mallick**, assistant manager and **Mr. Ramakant Yadav**, research and development specialist) at the Anchrom Enterprises Pvt. Ltd. for giving hands on training on CAMAG HPTLC system at the India specific HPTLC Application Research Laboratory, Mumbai and assisting in troubleshooting during HPTLC analysis of my samples at the S. P. University, Vallabh Vidyanagar.

I gratefully acknowledge **Prof. K. C. Patel**, Head of Bioscience Department, Sardar Patel University for providing HPTLC instrument facility to analyze my samples at SPU, Vallabh Vidyanagar.

I would also like to thank **Dr. A. K. Asthana**, **Dr. Sanjeev Nayaka** and **Dr. Rajesh Bajpai** of the National Botanical Research Institute (NBRI), Lucknow for confirmation of the specimens of bryophytes and lichens.

One more time, I grateful to my guide **Dr. Dharmendra Shah** to contribute research grant of Research Consultancy Cells, The Maharaja Sayajirao University Baroda for financial assistance for my research work.

I would also thank to The Maharaja Sayajirao University of Baroda for awarding me **University Research Scholarship** from the November, 2019 as financial assistance.

I am also grateful to my teachers of Botany Department **Prof. Vinay Raole**, **Prof. Sunil Singh**, **Prof. Aruna Joshi**, **Prof. Punita Parikh**, **Prof. Susy Albert** and **Dr. Nagesh Chirumamilla** for their kind support during research work. I wish to thank non-teaching staff of Botany Department and other staff members of faculty and university office of The M. S. University of Baroda for their support and cooperation.

I am thankful to **Mrs. Shruti Shah** and my senior **Dr. Shreestuti Khare** for her moral support.

I am obliged to **Dr. Pramod Sivan** for assisting and stand besides me in some experiments of my research work. Thank you very much for believing, supporting and inspiring me during ups and downs of my research experiments' outcome.

I am also thankful to my colleagues Mr. Rakesh Gujar, Mr. Amit Gondaliya, Mr. Ronak Patel, Mr. Ravi Patel, Mr. Ajit Vasava, Mr. Ashutosh Pathak, Mr. Kavi Oza, Mr. Maulik Dave, Ms. Mannu Divedi, Ms. Kalpna Pal, Ms. Dhara Ramoliya, Ms. Shruti Patel, Ms. Mitu Mewada, Ms. Aradhna Pandey, Ms. Amrita Chaurasia, Ms. Reshma Parmar, Ms. Swati Patel, Ms. Maitry Trivedi, Ms. Karishana and Ms. Payal, who associated and supported me during my journey of Ph.D.

I am very pleased for my friends Mr. Rutvik Tank, Mr. Mihir Sarang, Mr. Prakshal Jain, Ms. Trupti Dubey, Ms. Priyanka Mathur, Ms. Nisha Das, Ms. Rajalakshmi Karanakulam, Ms. Shambhawee Bais and Ms. Monika Yadav who always besides me for cheering in my ups and downs of this journey.

Now, it's time to express my deep sense of gratitude for my parents (**Mrs. Heena Mehta** and **Mr. Naveen Mehta**) for giving me chance to do my interest of work despite facing some health issues at home. Thank you very much Mummy and Papa for making me strong and believing in me and my work. I am heartily thankful to my siblings (**Mrs. Hemal Sarath**, **Ms. Dhara Mehta**, **Mr. Yash Mehta**) and brother in law (**Mr. Sarath Shankar**) for supporting and encouraging me all the time. Special thanks to my cute niece (**Drisha**) for bringing a smile on my face even when I am not feeling good.

Above all, I thank to God Almighty for blessing showered upon me during my research work.

Disha Mehta