

Acknowledgements

After an intensive period of five years, today is the day: writing this note of thanks is the finishing touch on my thesis. It has been a period of intense learning for me, not only in the scientific arena, but also on a personal level. Writing this thesis has had a big impact on me. This research work is a milestone in my academic career. I would like to reflect on the people who have supported and helped me so much throughout this period.

Indeed the words at my command are not adequate to convey the depth of my feelings of gratitude to my guide Prof. Debjani Chakraborty for her valuable guidance, imperative encouragement and for quality work. I have been amazingly fortunate to have a guide who gave me freedom to explore on my own and at the same time provided the guidance to recover when my steps faltered. I originally being an organic chemist had teething problems venturing into bioinorganic chemistry. She had been patient enough dealing with my ever-increasing list of questions and helped deepening my understanding of inorganic chemistry with the kind of research scenario bioinorganic chemistry has today. I am deeply grateful to her for the long discussions and brain storming sessions that helped me a lot to strengthen my research aptitude. She has always been inspirational to me as a teacher and as a good human being.

I am thankful to Prof. Anjali Patel, Head, Department of Chemistry, Prof. H. R. Kataria, Dean, Faculty of Science and Prof. N. D. Kulkarni, former Head, Department of Chemistry, for providing with necessary and timely facilities required throughout the tenure of my research.

I gratefully acknowledge UGC-MRP, New Delhi for providing financial support. I convey my sincere thanks to all the teachers for providing valuable suggestions and constant motivation. I would like to thank all the non-teaching staff of the chemistry department, faculty and the University for their Cooperation during my research period. A special thanks to Mrs. Revathi, Mr. Rane and Mr. Ninad Mehta for helping out with the administrative problems and for always being kind and cheerful.

I owe my sincere and earnest thanks to the head of zoology department and Dr. R. V. Devkar for readily agreeing to collaborate with us for various bioactivities that my research work demanded. I am grateful to his students, especially Ms. Kavita Shirsath and Mr. Alisagar Vohra for their dedicated inputs in carrying out the assays generating and providing with the necessary biological data as and when required.

Deserving of special mention are all my colleagues and my peer, for standing by my side and infusing cheer and joy throughout all ups and downs of the research journey. Firstly I would like to express my gratitude to my senior Ms. Rinky Singh and Ms. Ramadevi Pulipaka for passing down to me their learnings and skills needed in research and for being there whenever I needed guidance. Secondly I thank my labmates Nisha, Priyanka Salunke, Aditya, Krutika for the fun filled moments in the lab, for making it so lively and enjoyable. I will definitely miss the lunches we had together amidst all the laughs and giggles. Finally, there are my friends Khushboo and Grishma. We were not only able to support each other by deliberating over our problems and findings, but also happily by talking about things other than just our research. Big thanks to Gaurav bhaiya for helping me in solving ^1H NMR of ligands.

Finally, none of this would have been possible without the silent support and blessings of my family; their intrinsic contribution in each word that I have been able to write in this thesis cannot be acknowledged enough. I bow my head to my parents and grandparents who have constantly motivated me throughout by showering on me their unconditional love and care. They were a big support at my peak time of research and thesis writing. I cannot conclude my thanks giving without thanking my In-Laws and my husband. Their patience and perseverance has been remarkable all along this one long year since my marriage. I thank them for their unconditional love, care and support throughout. I cannot thank my husband enough for his support, for being there for me no matter what and bearing with me. Last but not the least I am thankful to God for blessing me with everything I would ever need and for putting exactly the right people in my life, at exactly the right time.

June 2020

Vadodara

Priyanka Khanvilkar

DEDICATED TO MY GRANDFATHER