

ACKNOWLEDGEMENT

Firstly, I would like to convey my deepest gratitude and thankfulness towards my supervisor, Prof. S. K. Saha, for accepting me as his Ph.D student and giving me the opportunity to learn under his guidance. This thesis would not have been possible without him.

I sincerely thank all the faculty members, of our department, especially Prof. A. Misra, Prof. A. K. Nanda, Dr. S. Das, Prof. B. Basu and Prof. P. Ghosh who have always been very supportive providing their invaluable suggestions numerous times regarding DFT calculations, NMR studies and organic syntheses.

I also thank my lab mates, Dr. Soumik Bardhan, Madhurima Paul Chowdhury and Barnali Kar who have always been there for the scientific discussions besides making the work environment ambient. My special thanks to Dr. Tamal Goswami and Dr. Debasish Sengupta for their immense help in discussion and execution of theoretical calculations and organic syntheses.

I thank all the non-teaching members of our department for the office support they provided whenever necessary.

I would also like to specially acknowledge my friends Debolina, Sumit, Arpita, Pinaki, Swarnali and Dr. Biplab Panigrahi, for their unconditional love and support.

Finally, I am thankful to the Almighty for blessing me with my family. My parents have been the greatest support, pillar of strength and everything that I needed to make this journey possible. At times, when confidence gave away, they always pulled me up and showed the way to focus. My little sister is that never ending boost of energy, I always look up to. I also cannot thank Almighty enough for giving the companionship of Mr. D. Guha. He has been that person who never gave up on me and have always lifted me up in this incredible journey and beyond.

This work is financially supported by United Grants Commission, (UGC) New Delhi through the Basic Scientific Research (BSR) fellowship scheme (Award number: F.4-1/2006(BSR)/7-133/2007(BSR))

Gulmi Chakraborty