

Acknowledgement

The work in this thesis would not have been possible without the support (both emotional and scientific) from a number of different individuals:

Prof. Pranab Ghosh, Professor, Department of Chemistry, University of North Bengal, Darjeeling, has been a marvelous advisor over the course of my postgraduate studies - Not only is he a good supervisor, but he is a very good human being. He has been a source of my inspiration. I take this chance to convey my first and foremost sincerest gratefulness to my supervisor, who has supported me right through my thesis with his priceless guidance. His knowledge in chemistry remarkably inspired my growth as a researcher.

I wish to acknowledge the Head, Dept. of Chemistry, Prof. M. N. Roy and other faculty members of this department for their imperative support.

I am also grateful to Prof. B. Basu, Dept. of Chemistry, and Prof. A. K. Panda, Dept. of Chemistry, for allowing me to access sonicator in their laboratory.

I desire to express my respect and thanks to all the non teaching staff of this department for their selfless assistance who have given their heart whelming full support in making this compilation a magnificent experience and all the research scholar of this department for all kind of invaluable cooperation throughout my research work.

I wish to thank my fellow lab mates for the exciting discussions, with whom I enjoyed many more unforgettable moments during this journey.

My family has been an incredible source of support and encouragement during my Ph.D. I have always shared my tension and pressure with them during this work. They have always been behind me with the decisions I've made, and for that I am tremendously grateful.

Special thanks to Indian Oil Corporation Limited and Bharat Petroleum Corporation Limited for supplying the base oils. I am grateful to IIP, Dehradun for analysing some of the samples. I am also remaining grateful to Dr. Abiral Tamang, Jadavpur University and Dr. Raju subba for SEM and X-RD experiments.

I would also like to express my sincere thanks to UGC, New Delhi, India, for awarding fellowship and University of North Bengal for providing the infrastructural facilities.

Finally, over the last 4 years I have always been able to rely on a special one being there for me. We both know how intense the whole PhD process can be and I have always respected her point of view. And now that it's over, I'm excited about starting our new lives together!

Koushik Dey 02/11/2017

Koushik Dey
Department of Chemistry
University of North Bengal