I would like to express my deep sense of gratitude to my supervisor Professor A. K. Siddhanta, Scientist, for his constant encouragement, kind support, and invaluable guidance as well as for providing laboratory facilities to carry out the work presented in this dissertation. He has been a great driving force and inspiration for me throughout the investigation. During this investigation, I had been immensely benefited from his encouragement, guidance and constructive criticisms.

I would like to take this opportunity to express my grateful thanks to Dr. P. K. Ghosh, Director, Central Salt & Marine Chemicals Research Institute (CSMCRI), Bhavnagar for his kind help and encouragement. I avail this opportunity to express my sincere gratitude to Dr. Kamalesh Prasad and Dr. Ramavtar Meena, Scientists, for their valuable suggestions, help and support throughout this work. I am highly thankful to Dr. B.K. Ramavat, Dr M. Ganesan and Dr. Vaibhav A Mantri, Scientists, for collection and identification of marine algae which were used for this dissertation work.

Sincere thanks are due to Professor B Jha, Discipline Coordinator, Marine Biotechnology and Ecology Discipline, Dr Parimal Paul, Head, Analytical Science Discipline, Dr (Mrs) Kalpana H Mody, Dr. C.R.K. Reddy and Dr Sandhya Mishra, Scientists, for their kind help and support.

I would also like to express my thanks to Dr. D.R. Chaudhary, Dr. S. H. R. Abdi, Dr. Amitava Das Scientists, for their help during my research work. I am thankful to Dr. Gayatri Prasad, Gaurav K Mehta, Mihir D Oza, Sanjay Kumar, Naresh D Sanandiya, Bhagirath Patel, Chirag Godiya, Uday Vegad, Stalin Kondaveeti, Devaki Nandan, Dharmesh R. Chejara, Arpan Shah, Gautam Jain for their constant help and encouragement.

I deeply appreciate the help which I obtained from Gaurang Dubal, Kaushal Oza, Naresh Chauhan and Viraj Parmar at the initial stage, when I began this work. I am deeply thankful to Santlal Jaiswar, Vishal Bhai, Maheta Bhai, Kaushik Chunawala, Nayan Bhatt, Sanjay Lal, Iti Gontia, Mrs. Anupama Mishra, Manoj Agrawal, Rajendra Patil, Mallikarjun Patil, Arvind Chaudhari, Jatin Vyas, Sanjiv Mishra, Vishal Mayani, Santosh Agrawal, Achyut Bhatt, Girdhar Joshi, Gahnshyam Jadav, Ghanshyam Joshi, Dr. Pravin Surolia, Tejwant Singh, Manoj Gupta, Vishal Gupta,
Krunal Shah, Dr. Yasmin Khambhati, Dipti Jain, Suresh, Yagnesh, Govind Sethia, Dharmesh Kapadiya for the valuable discussions, support and help.

I would also like to acknowledge the important technical assistance of Dr. (Mrs.) P. Bhatt for P-XRD analysis, Mr. Vinod Agrawal for FT-IR analysis, Mr. Chandrakanth and Jayesh for SEM Analysis, Mr. Harshad Brahmbhatt, Ms Daksha for GC-MS analysis, and Mrs. Sheetal Patel for TGA Analysis. Mr Vinod Boricha, Hitesh Bhatt for FT-NMR analysis, Mr. Viral for Elimental analysis, Mr. Mitul for ICP analysis as well as to Miss Avani Shah, Mr. Pramod Makwana, and Ketan of IT Cell. I am grateful to the staff of CSMCRI who has directly or indirectly extended their kind help during my tenure in this institute.

I am grateful to the Ministry of Earth Sciences (MoES), New Delhi, for the granting me a fellowship under the National Program Drugs from the Sea during July 2005 to April 2009. I am also grateful to the Council of Scientific & Industrial Research (CSIR), New Delhi for the award of a senior research fellowship (SRF).

Finally, I would like to offer my deep feelings of gratitude to my beloved parents, brothers, my wife Nimisha, our son Soham and other members of my family for their constant support and encouragement during the course of my work.

(Mahesh U. Chhatbar)