No dissertation is an individual effort and I am grateful to all the people involved in this study.

It is my privilege to have undertaken this study under the guidance of Dr. C. Adithan, Professor of Pharmacology, JIPMER, Pondicherry. With a profound sense of gratitude, I express my sincere thanks to Dr. Adithan for his patience, understanding, constant encouragement, reassurance, affection, unflagging support and able guidance without which the study would have never been completed.

I owe my deepest gratitude to Dr. C.H. Shashindran, Head of the Department of Pharmacology, for showing genuine concern and interest in my work, and for his easy approachability, help and practical suggestions at every step of the work. Words would fall short to appreciate his understanding, scholarship and above all the impartial outlook he holds for his students.

I express my heart-felt thanks to all my volunteers, who sincerely co-operated with me throughout the study, without their generous help this study would have never been fulfilled.

I extend my deep appreciation and indebtedness to all the faculty members of Pharmacology department for their lively criticism, constructive suggestions and constant encouragement throughout the course of present investigation. I would specially thank Dr. R. Raveendran for his valuable helps in my statistical analysis and Dr. D.G. Shewade for providing the dextromethorphan syrups for my study. I am also grateful to all the non-teaching staff of pharmacology department.
Words are inadequate to express my gratitude to the members of the HPLC laboratory, Mr. R. Balakrishnan, Mrs. M. Tamiljarassy and Miss E. Immaculate, who saw me through the various misadventures that invariably befall a primarily research student in the alien milieu of the laboratory and they provided me all the helps in my HPLC analysis. I also thank Mr. S. Mourthy and Mr. Kathiruvel for their co-operation and help rendered during this study.

I am thankful to the Director, the Dean and the Medical Superintendent, JIPMER, for giving me the permission to conduct this study and providing all the necessary facilities.

I owe my debt of gratitude to the scientists who helped me in the sample collection from different South Indian states especially Dr. N. A. Aleykutty and faculty members of Department of Pharmaceutical Sciences, M. G. University, Kerala, Dr. P. Usha Kiran, Department of Pharmacology, Rangaraya Medical College, Kakinada, Andhra Pradesh, Dr. J. Mohanasundharam, Department of Pharmacology, Perundurai Medical College and Research Centre, Tamil Nadu, Mr. Siby Mathew, J.S.S. College of Pharmacy, Mysore, Mr. Ramesh Raju, Vetcare Pharmaceuticals, Bangalore, Dr. Amitkumar Das, Krupanidhi College of Pharmacy, Bangalore and Mr. Rajashekar Malli, Government College of Pharmacy, Bangalore, without which a study of this nature of would have been impossible.

My special thanks to Dr. Eva-Maria Gutknecht, F. Hoffmann-La Roche Ltd, Basel, Dr. Eva Rasmussen, Department of Clinical Pharmacology, University Hospital, Uppsala, Dr. K. N. Bopanna, Astra-IDL, Bangalore and Dr. S.V. Shanbhag, Boehringer Mannheim India Ltd., Maharashtra, who had taken the trouble of sending the pure chemicals. These chemicals were indispensable to this study.
I would like to make a special mention of my Ph D colleagues of all the departments especially, Mr. Mohammed Asad, Mr. Koumaravelou, Miss. Geetha Latha, Mr. Satyaprasad, Mr. Raghav, and Mr. Presant, and the MD students of pharmacology department, Dr. Isabella Topno, Dr. Poppy Rajan, Dr. Ilengovan, Dr. Suchitra, Dr. S. Vasu and Dr. Sivaperuman, who stood by me during this study period and I am grateful to them for their sharing nature and constant encouragement.

I am indebted to many of friends specially, Mr. Jayan & family, Mr. Krishnakumar & family, Dr. Santhosh, Dr. Sudheer, Dr. Sunil Roy, Dr. Sunitha Chacko, Dr. Mahesh, Dr. Joseph and Dr. Raveesh who was with me from the conception to the completion of this project and the help they have rendered was invaluable.

I would also not forget the numerous authors who have worked on this subject and from whose wisdom, I have amply benefited. It also behooves me to thank all the referees who gave valuable suggestions during my research publications, which immensely helped me to improve the quality of my work.

Finally I thank my family members for their constant support and encouragement and to all other people who helped me directly or indirectly in various aspects of this research work.

BENNY K. ABRAHAM