ACKNOWLEDGMENTS

I would like to express my profound gratitude to Dr. K. Thyaga Raju, Ph. D., (Penn State, USA), Ex Director DOA (SVU), Co-Ordinator, Division of Phamacy, Chairman-BOS, Dept. of Biotechnology, Professor in Dept. of Biochemistry, who invited me to join to this scientific journey. It has been fortunate for me to be his student. I thank him for giving me the opportunity to play a quality scientific work and for his constant guidance, motivation, suggestions, discussions throughout the course of study, especially enormous support.

My deepest gratitude to Prof. Ch. Apparao, Head, Dept. of Biotechnology, Prof. S.D.S. Murthy, Chairman, BOS, Dept. of Biochemistry, Prof. O.V.S Reddy, Head, Dept. of Biochemistry and Dr. M. Balaji, Faculty in our department for their integrated efforts along with my research supervisor in establishing and for all comments, opinions and constant help those were so important throughout this work.

I wish to express my gratitude to Prof. K. Jayantha Rao, Dean Faculty of Sciences, SV University, Tirupati, Prof. Punyaseshudu, Dean, Rayalaseema University College, Rayalaseema University, Kurnool, Prof. MAK Sukumar, Rector, SV University, Titupati, Prof. T. Sankaraiah, Prof. N. Munirathnamma, Dr. T. Madhu, Faculty of SV University, DVS Chakravarthy Reddy, Correspondent, SDHR Degree and PG Colleges, Rayachoty and Tirupati, Dr. SN. Rasool, Dept. of Biochemistry, National Degree and PG College, Nandyal, Rayalaseema University, for their suggestions and cooperation during the course of my research.

I am thankful to past and present seniors Dr. Nabi, Dr. U Lakshmi Narasaiah, Dr. Ruxana, Dr. Sailaja, Dr. Sujatha, Dr. Veena, Dr. Sandya, Dr. Haseena, Dr. Ramohan, Dr. Sudheer, Dr. Ramesh, Dr. Swapna, Dr. Prasad, Vijay Kumar, Vara Kumar, Sreedhara Murthy, Prabhakar, Swarna, Saritha, for giving suggestions during the course of my research tenure.

Moreover, I would like to express my greatest appreciation to all of my labmates, Meena, Kamala, Divya, Pallavi, Jaya, Sajeda, Divya, Namratha, for giving suggestions and cooperation during the course of my research and for their many contributions in my graduate research. Everyone was very important, but I must
emphasize the help and friendship of Mr. Suman who has provided every support in my laboratory.

I want to express my acknowledgments to all colleagues and friends of the Biochemistry department Subhan, Naresh, Arif, Raju, Rajesh, Tilak, Ramesh, Adam, Anji, Jyothi, Ram, Hema, Guna, Bhanu, Vijay, Peddi, Ramya, Seenu, Praveena, Harika. Each one has collaborated with on important knowledge that made me to grow up in scientific and also in personal life.

I am thankful to my roomates Dr. K. Linganna, Research Associate, Sri Venkateswara University, Tirupati, Dr. M. Ravi, PDF-China for received me in this research with so kindness and enormous friendship and their help since initial stage of research.

I am thankful to my friends K. Raju, Pulisekhar, O. Ravi, Dr. Maddhaiah, YK Viswanath, Narendra, Prakash, Swamy, Madhu, Sagar, Veeraiah, Dr. Obulesu, Suresh, Hari, Pavan, Chandra Babu, Delhi Babu, Ramesh, KVK, Subbu, Ishmael, Ravi, Kishore, Seenu, Dr. Govindulu, Sankar, Madhav, Ranjith, Katam, Lallu (Ramana), Murali, Harinarayana, Prabhu, Obul Reddy, Rajasekhar, Saptagiri, Chiru, Sankar Naik, Akulappa, TC Narasimha, Rajesh, Ravi, Murali, and Muniraj always showed affection towards me.

I wish to thank to my villagemates Prem, Swamy, Noor, Anthaiah, Karna, Peddanna, Buddu, Chinna, Suresh, Raju, Sanjeev, Venkatesh, Suneel, Swamulu, Balu, Sudhakar, Chitti, Karna, Manohar, Nickil, Suvarna, Rajarao, Bhushan for their support and encouragement.

I wish to express my deepest gratitude to my student friends Jaya, Raja, Sanjeev, Narasimha, Mahesh, Sankar, Raju, Dinesh, Uday, Meer, Mano, Ravi, Suneel, Moulali, Guru, Stephen Ravi, Edwin, John, Naik, Shabbir, Mano, Vasu, Ranga, Nirmala, Bhavitha, Roda, Kalpana, Navatha, Radha, Supratha, Jhansi, Swapna, Varsha, and Chenna Krishna Reddy, Vali, Seenu, Gangi Reddy, KM Naidu, Reddeppa Reddy, and SDHR College Staff who always showed affection on me.

I am thankful to Raghu, Murali, Chaitanya, Hari, Amudha, Sujatha and Chinnappa office staff of Biochemistry department.
I am thankful to Dr. Rani Thyagaraju, Dr. Jyothi, and Rajendra, for the good hospitality during our visits to their house.

I wish to express my deepest gratitude to my Sisters Smt. V Sivamma, Venkatalakshamma, Brother-in-law V. David, Kasapogu Rajarao and Katepogu Bhasker and family members Swaroopa, Rajeswari, Raga Pallavi, Jaya Keerthi, Joy, Keerthi, Immanuel, and Hari for their epitomy of patience for allowing me to choose my path for their faith in me and their endless love on me, and has a whole for providing the luxuries which I never craved for ......

I am thankful to Father- in- laws (Late) Kasapogu Pedda Sanjanna, (Late) Nadipi Sanjanna and (Late) Sanjeeva Karna, my Mother-in-laws Smt. Pedda Lingamma, (Late) Sarojamma and Vengamma for giving moral support and encouragement.

I am thankful to Father-elder-brothers (Late) Thimmapuram Mallepogu Pedda Swamanna, Nadipi Swamanna, Chinna Swamanna, my Mother-elder-sisters Smt. Venakatsasshamma, Nagamma, Sugunamma, my brothers Venkataswamy, Venkataramana, Nagaseshulu, Nagabhushanna, Venkataramana, Nageswara Rao, Balu and family members for cooperation during my personal life.

I feel there is no word in this world to thank my father Sri. Thimmapuram Mallepogu Swamanna, mother Smt. Nagamma for their immeasurable love, prayer and support and instilling in me an unreal determination and work ethics.

I am always grateful to University Grants Commission (UGC) for providing financial support to carryout my research work under Rajiv Gandhi National Fellowship (RGNF) to pursue PhD degree.

And to any I have forgotten to mention, although your name may not be written on paper, you undoubtedly hold a special place in life. Praise the Lord for making me the person I am today ..............

M. VENKATASWAMY....