ACKNOWLEDGEMENT

“The Lord is my shepherd; I shall not be in want” Psalm 23:1

First and foremost thank God almighty for the wisdom and perseverance that he has been bestowed upon me during this research work, and indeed, throughout my life.

It is a privilege for me to express my deep sense of gratefulness with extreme reverence to my guide Dr. Ramadasan Kuttan with his enthusiastic spirit, vast knowledge and inspiring pieces of advice, he remain as a beacon of light during all phases of my research. His constant oasis of ideas and passion in science exceptionally inspired and enriched my research attitude. I finished my work only because of his inspiration, constant encouragement, suggestions, marvelous support, guidance and care.

I express my sincere gratitude to Dr. Girija Kuttan, Professor, Dept. of Immunology, Amala Cancer Research Centre for giving valuable suggestions, encouragement and support during my research work.

I express my sincere thanks to Padma Bhushan Rev. Fr. Gabriel CMI, Founder director, former directors, Rev. Fr Paul Achandy and Rev. Fr. Walter Thelappilly and CMI director, Rev. Fr. Francis Kurissery, Amala Cancer Hospital and Research Centre, for permitting me to carry out the work here.

I would like to express my gratitude to Dr. Jose Padikkala, Professor, Dr. T. D. Babu, Assistant Professor, Dr. Achuthan C. Raghavamenon, Assistant Professor and Dr. K. K. Janardhanan Professor for sparing their valuable time in sharing their professional skill, experience, knowledge and support.

I am wholeheartedly thank Mrs. Jeena K. for all the help she have done to me during all the stages of my research work. I heartily thank Dr. Sindhu E R, Mrs. Binitha P P, Dr. Firdous A P and Dr. Preethi K C, Department of Biochemistry, for their boundless help and support during the study.

I express my special thanks to Mrs. Chubicka Thomas, Dr. Salini Sasidharan, Miss. Remya V, Mrs. Vishnupriya Murali, Mrs. Gilcy George, Mrs.
Divya Menon K, Mrs. Meera R Nair, Miss. Silpa, Mrs. Lincy Lawrence, Mr. Adil Nafar, Mr. Arunaksharan N, Mrs. Jeksy J M, Mrs. Seema Menon, Miss. Veena, Mrs. Smitha K R, Mrs. Indu M S, Mr. Vipin P Sivaram, Miss. Surya, Mr. Ravi Kumar, Mrs. Greeshma and Mr. Shaji for their support, encouragement and companion during my work.

I express my sincerest thanks to Mrs. Hemalatha, Mrs. Preetha, Ms. Thankammani, and Mrs. Sumathy for their constant help and support.

I convey my sincere thanks to Dr. Ramnath V, Asst. Professor, Dept. of Physiology, College of Veterinary and Animal Sciences, Mannuthy for his help.

I am also thankful to Mr. M. Muthuvel, Radiation Safety Officer, Mr. K. Kathiresan and other members of the Dept. Radiotherapy of Amala Cancer Hospital and Research Centre for their support in radiation studies.

I am very much grateful to Spices Board of India, Cochin, for providing the financial support needed for the study. I also acknowledge Kancore Ingredients Pvt. Ltd., Angamali, Kerala, for supplying me turmeric essential oil for the study.

I am deeply grateful to Indian Council of Medical Research (ICMR) for awarding Senior Research Fellowship for successfully completing my work.

I would like to thank my seniors Dr. Hamsa, Dr. Siveen Kodapully, Dr. Pratheeshkumar, Dr. Gopakumar G, Dr. Fijesh P. Vijayan and Dr. Dhanya.

I affectionately memorize my mother, brother, sister and brother-in-law for their support, encouragement, blessings and prayer.

I take great privilege to express my heartfelt thanks to all those who have directly or indirectly helped me in getting through this thesis successfully.

LIJU V.B.