ACKNOWLEDGEMENTS

It is my great pleasure and privilege to express my deep sense of gratitude to my guide Dr. (Mrs.) P. H. Parikh. She is the one who made this thesis and its work possible, through her vision, continuous motivation, administration and knowledge. She is the brain and back bone of this entire thesis and it is her nourishment that I am able to write this thesis. I am sincerely grateful to her for visualizing this entire study, providing contacts and resources whenever and wherever I needed, encouraged me for developing "a never give up attitude", working equally hard with the entire team during the completion of this thesis despite of her ill health. It is her belief that pushed me to explore more and more about bone research. She is amongst the people who not only deserves acknowledgements but shall be remembered for life time. It is she because of whom I am going to earn this doctoral work and the honorary degree.

I am extremely thankful to Dr. Isha Desai, Lecturer, N. V. Patel College of Pure & Applied Sciences, Vallabh Vidhyanagar, only because of her encouragement and support, I decided to pursue my studies further in the form of this thesis.

Special thanks to Dr. B. Suresh, for his practical advice whenever required, I am also thankful to Dr. Dolly Kumar, for her ever smiling face and encouragement.

I put in words, my deep sense of gratitude for Dr. Ayaz Rangrez, my senior for nurturing me from the day of my joining, till my thesis submission. He helped me not only troubleshooting my experiments, but also helped me in learning various instruments of our lab. Due to his expertise, I was able to learn animal handling, animal dosing, surgery, blood collection, biochemical estimations, cell culture protocols and flouroscence microscopy in no time. He not only helped me in mastering these high end skills, but also enlightened me about various softwares used to analyze the statistical significance of my data and help me produce refined outcomes from my study.

Collectively, I am extremely thankful to my juniors Ms. Bhavika Desai and Ms. Shalaka Sadekarpawar for taking care of my animals in my absence, as well as making my referencing easy during my thesis writing. Words would be less to express my gesture of acknowledging for Mr. Ankur Upadhyay, my junior, showing the attitude of a younger brother who was always ready to run with me for all my work.

I am thankful to Head, Department of Zoology for providing me all the facilities to carry out my research work.

I extremely thankful to Mr. Jigar Shah, Research Officer, Sun pharma Advanced research centre, Vadodara, for his help in procuring animals required for my research, without which the work would not have been possible.

I am also thankful to Dr. D. N. Rank, Head of the Department of Animal Genetics and Breeding, College of Veternary Science & Animal Husbandry, Anand Agriculture University, Anand, to gave me surety to providing me all the facilities to carry out my research work in his institute if required.

I am sincerely grateful to Prof. N. D. Kulkarni, Head of the Department of Chemistry, to permit me to analyze my samples and carrying out GC-MS. I would like to thank to Mr. Harnish Soni, Department of Chemistry, to analyze and carrying out GC-MS of my samples.

I would be failing if I do not acknowledge my juniors Ms. Khushali, Ms. Suchi and Ms. Reshma to come and help me in the final stage of my work.

I am grateful to all my teachers in Department of zoology for their support and encouragement. I am also grateful to Non-teaching staff for their timely help in various situations.

I am heartily thankful to my colleague Mr. Digvijay Chavda, Assistant Lecturer, N. V. Patel College of Pure & Applied Sciences, Vallabh Vidhyanagar, he was with me irrespective of time and situation during my duties and research work.

I express my sincere gratitude to my family, for their kind support during the long journey of my thesis. I am blessed for having a mother who always encouraged my studies.

I will just give a heartfelt "thanks" to my wife, whose encouragement allowed me to finish this journey.

I WOULD LIKE TO DEDICATE THIS THESIS TO MY MOTHER AND FATHER, FOR THEIR HARDWORK, SELFLESS EFFORTS, UNDERSTANDING, ENDLESS PATIENCE AND ENCOURAGEMENT FOR MY EDUCATION.