ACKNOWLEDGMENT

In the name of Allah, the most Gracious, the most Merciful; He says: “Read! In the Name of your Lord, Who has created (all that exists)”. All praise and glory go to the Almighty Allah, the one above all of us, the omnipresent God, for His bounteous mercy and kindness, for answering my prayers, and for giving me the strength, patience, and hope. Without His kindness and mercy, I would not have been able to complete this endeavor.

First and foremost, I offer my sincerest gratitude and appreciation to my supervisor, Dr. Sureshchandra P. Zambare for his excellent guidance, caring, patience, and providing me with an excellent atmosphere for doing research. Without him this thesis would not have been completed or written. His advice and unlimited support have been invaluable on both an academic and a personal level, for which I am extremely grateful. Above all and the most needed, he provided me steady encouragement in various ways. His truly literary intuition has made him as a constant oasis of ideas in science and knowledge, which exceptionally inspire and enrich my growth as a student, a researcher want to be. I am indebted to him more than he knows.

It is with immense gratitude that I acknowledge the support and help of the head of the department Prof. C. J. Hiware and the former head of the department Prof. Y. K. Khillare.

I owe sincere and earnest thankfulness to Prof. B. B. Waykar, Prof. Mrs. Meena Patil, Prof. A. N. Vedpathak, Prof. K. B. Shejule, Prof. D. L. Sonawane, Prof. E. R. Martin, Prof. Mrs. S. V. Nikam,
Prof. K. R. Reddy, Prof. Mrs. S. R. Sonawane, Prof. Mrs. S. N. Borde, Dr. C. B. Dummalod, Dr. R. J. Chavan, Dr. S. S. Mokashe, Dr. G. D. Khedkar, and Dr. R. P. Chondekar for providing me valuable inputs, guidance, encouragement and whole hearted cooperation.

My special thanks go to all the members of the higher education section in Thamar University-Yemen and the college of applied science especially the Biology department and the head of the department for their direct and indirect help during my research work.

I am heartily thankful to Dr. Kamlesh Mali, Dr. Yogesh Kangade, Dr. Satish Shinde, Dr. Bharati Kolhe, Dr. Krishna Nagare, Dr. Minakshi Rane, Dr. Gajanan Deshmukh, Dr. Shahjahan Shaikh, Dr. Sujeet Jamdar, Praful Gadge and Indrajeet Urunkar for their help, support and assistance from the initial steps of mine in Aurangabad.

I gratefully express my thanks to my laboratory colleagues, friends, administrative and non teaching staff for their direct and indirect help in my research work.

My immeasurable gratitude to my father Mohammed Abd Al Wahab Abd Al Galil and my mother Lawz Hamood Abd Al Galil for their inseparable support, caring and prayers. They put my education on first priority and brought me up with love and value education.

I have a pleasure to express my grateful thanks to my elder brother Dr. Khaled M. A. Abduljalil, the one who mostly supported me during all my educational steps, without his support and assistance this work would never be completed. Again, I gratefully express my thanks to my younger brother Mr. Jameel M. Abduljalil, and my sister Bothainah M. Abduljalil for their caring, love, encouragement and support.
A very special recognition needs to be given to my wife, my sons Khaled, Nawaf and my daughters Nawf, Khulood and Alia’a for their unconditional love, patience and support in every way possible throughout the process of the master degree, this dissertation and beyond. Without my family encouragement, I would not have finished this marathon work. They are always cheering me up and stood by me throughout the good and bad times. Words fail to express my appreciation to their dedication, love and persistent confidence in me.

It gives me great pleasure in acknowledging all of the Yemeni students in Aurangabad for their direct and indirect help during my research work.

Finally, I would like to thank everybody who was important to the successful realization of thesis; as well I express my apology that I could not mention personally everyone.

(Mr. Fahd Mohammed A. Abd Al Galil)