ACKNOWLEDGEMENT

In the first place I would like to record my sincere gratitude to my research guide Prof. M. V. Kulkarni for his supervision, advice and guidance from the very early stage of this research, as well giving me extraordinary experiences and initiative throughout the work. His truly scientist intuition has exceptionally inspired me, thereby enriching my growth as a student, a researcher and a scientist want to be. I am indebted to Prof. M. V. Kulkarni more than he knows.

It is my great privilege to express deep sense of gratitude to Prof. D. D. Dhavale, Head, Department of Chemistry, Prof. M. Dikshit and Prof. (Mrs.) R. S. Kusurkar, Former Heads, Department of Chemistry, University of Pune, for their support and encouragement during the tenure of this work.

I had the opportunity to solicit the co-operation from the Faculty of Department of Chemistry, University of Pune. The valuable support and affection from Prof. K. R. Gawai, Prof. K. M. Kodam, Prof. (Mrs.) S. G. Sabharwal, Dr. (Mrs.) P. Doshi, and Dr. (Mrs.) S. H. Ranade, Division of Biochemistry, Department of Chemistry, University of Pune, is appreciatively acknowledged.

I owe Hon’ble Vice-Chancellor, Prof. W. N. Gade, University of Pune, for providing laboratory infrastructure, library facility and constant encouragement for conducting research work.

I was extraordinarily fortunate for having Prof. S. B. Chincholkar, Prof. V. L. Maheshwari, Prof. A. B. Chaudhari, Dr. B. L. Chaudhari, Dr. P. R. Puranik, Dr. S. V. Patil, Mr. K. S. Vishwakarma, School of Life Sciences, North Maharashtra University, as my teacher during my M. Phil. degree. I could never have embarked and started all of this, without their prior guidance during my M. Phil. dissertation and thus opened up unknown areas to me.

It is my privilege to express deep sense of thankfulness to Prof. A. Manjunath, Department of Microbiology, University of Agricultural Sciences, Bangalore, for his valuable discussions, criticisms, guidelines and constructive instructions during the design of research plan and completion of screening program.

I want to express special thanks to Dr. (Mrs.) P. K. Jite, Department of Botany, University of Pune, for her indispensable help and guidance during mycorrhizal spore extraction, isolation, identification and efficacy study.
I also extend special thanks to Dr. Alok Adholeya, The Energy and Resources Institute (TERI), New Delhi, for his valued suggestions and guidance during various stages of mycorrhizal studies including spore disinfection, single spore propagation, multiplication etc.

I seize this opportunity to express my deep sense of indebtedness to Prof. N. Sarkar, Indian Statistical Institute, Kolkata and Dr. T. V. Ramanathan, Department of Statistics, University of Pune, for their generous help in reading and statistically analyzing the various data.

I wish to express my gratitude towards Prof. B. C. Banik, Faculty of Horticulture, and Dr. J. Saha, Faculty of Agriculture and Prof. R. K. Biswas, Department of Soil and Water Engineering, Bidhan Chandra Krishi Viswavidyalaya, Kalyani, West Bengal, for their endless help during the tenure of this work.

I am thankful to Dr. C. S. Chaudhari, College of Horticulture, Mahatma Phule Krishi Vidyapeeth, College of Agriculture, Pune, for his keen interest and consistent co-operation in this research work.

I would also like to express my sincere thanks to Dr. M. V. Deshpande, and Dr. A. P. Giri, Biochemical Sciences Division, National Chemical Laboratory (NCL), Pune, for their valuable suggestions and timely help.

Thanks are due to Department of Geology, University of Pune, for XRF analysis and Department of Soil Sciences, College of Agriculture, Pune, for the mineral compositional analysis of soil and plant materials.

I wish to appreciate continuous encouragement, help and co-operation received from Dr. Mahesh Borde and Dr. (Mrs.) Mayura Dudhane, during the tenure of this work.

Thanks go to Dr. Sanjay, Dr. Laxmi, Dr. Sharad, Dr. Sachin, Dr. Yogesh, Dr. Santosh, Dr. Chetan for their help.

Collective and individual acknowledgements are also owed to my colleagues Mrs. Namita, Mrs. Chetana, Mrs. Shridevi, Mrs. Jayashree, Mrs. Nisha, Ms. Pranitha, Ms. Harshada, Ms. Dhanashree, Mr. Swapnil, whose presence somehow perpetually refreshed, helpful and memorable.

I also thank to research scholars, Department of Chemistry, University of Pune.
Assistance rendered by research scholars, School of Life Sciences and University Department of Chemical Technology, North Maharashtra University, during soil sampling is gratefully appreciated.

The non-teaching staff of Department of Chemistry are also deserve thanks for their timely help.

My parents deserve special mention for their inseparable support, prayers and dedication. They put the fundamental to my learning character, showing me the joy of intellectual pursuit ever since I was a child. Their constant support and persistent confidence in me have kept me on track of research activities.

I wish to place on record my sincere thanks to Department of Biotechnology (DBT), New Delhi, for providing me financial assistance (Senior Research Fellowship - SRF) during my Ph. D. work.

Above all, I thank God for His grace, mercy, faithfulness and love in sustaining me, equipping me with strength to endure and preserve, and for being with me every step of the way.

Finally, I would like to thank everybody who played important role to the successful realization of thesis, as well as I am extending my apology that I could not mention personally one by one.

Promita Datta