

Acknowledgements

I would like to acknowledge with deep gratitude **Prof. Dr. Mohamed Mohamed Helmy Arief**, Professor of Organic Chemistry Faculty of Science Zagazig University-Banha Branch, for suggest the point investigated in this thesis and his direct supervision and support during all stages of this work.

I would like to express my deep thanks to **Dr. Kamal A. Rabie** Assistant Professor of Inorganic Chemistry Nuclear Materials Authority, for his kind supervision, valuable advice and informations, continuous encouragement and unlimited help.

I would like to express my acknowledgement to **Dr. Abd El-Monem M. F. Eissa** Assistant Professor of Organic Chemistry Faculty of Science Zagazig University-Banha Branch, for his help in production of this work.

I would like also to express my deep and great thanks to **Dr. Aly Abd El-Maboud** Lecturer of Organic Chemistry Faculty of Science Zagazig University-Banha Branch, for suggesting the point, providing the protocol of the work and his great, active and continuous help in the theoretical and practical parts of this work.

My deep acknowledgment should be directed to the members of separation of Rare Earth Elements Project in Nuclear Materials Authority, and members of Fermentation Biotechnology and Applied Microbiology Center Al-Azhar University especially **Prof. Dr.**