

ACKNOWLEDGMENTS

The author wishes to express his gratitude to Prof. Dr. El-Hussieny M. Diefallah, Department of Chemistry, Faculty of Science, Benha University, for suggesting the problem, his valuable supervision, kindly read the manuscript and his helpful comments.

The author is greatly indebted to Prof. Dr. A. Rabie, vice Dean, Faculty of Science, Benha University, for his kind supervision, his helpful criticism and valuable suggestions and keen interest in progress of the work.

I am in deep thanks to Dr. M.K. El-Mansy, Physics Department, Faculty of Science, Benha University, for his valuable supervision, his helpful guidance throughout the experimental work and his fruitful discussions.

The author is indebted to Prof. Dr. N.M. El-Naggar, Dean, Faculty of Science, Benha University, for his valuable help and advice which have rendered many difficulties.

He extends his thanks to Prof. Dr.M.El-Zaiki , head of physics department, Faculty of Science, Benha University for the facilities given during the progress of the work.

My thanks extend also to Dr.M. Kamal, Supervisor of X-ray Laboratory, Faculty of Science, Mansoura University for samples investigation using X-ray . Thanks also to Prof. Dr. H. Fouad, the head of the Hot Lab., Atomic Est. Egypt for his kind helpful in samples irradiation.