

DEDICATION

**To my dear mother, brothers, wife(Alradia),
daughters (,Tanzeel,Tarteel and Tagwa)
and son Deia Alhag.**

ACKNOWLEDGEMENTS

I would like to express my sincere appreciation and thanks to my major advisor **Dr. Atif Elsadig Idris** for his keen interest, encouragement and valuable Supervision, during this study. I am also thank Dr. Adam M. Ali from Agricultural Research Corporation (ARC) for providing part of the genetic material used in the study and unlimited support. Also, my thanks to Ustaz/ Atif Ibrahim Abuali for helping in the statistical analysis of the data. Also, my thanks extended the staff members and to my colleagues at department of agronomy, College of Agricultural Studies, Sudan University of Science and technology. Special thanks to those who contributed directly and indirectly to this research but not mentioned.

LIST OF CONTENTS

.....	ii
LIST OF CONTENTS.....	iii