

CONTENTS

ACKNOWLEDGEMENT

PREFACE

INTRODUCTION

What are Actinomycetes	1
Isolation from natural habitats	1
TAXONOMY OF ACTINOMYCETES	3
CLASSICAL CRITERIA OF DIFFERENTIATION OF GENERA	3
AND SPECIES OF ACTINOMYCETES	3
Morphological Criteria	4
Morphological features to be recorded	4
Morphology of spores	4
Cultural Properties	5
Color of Substrate Mycelium and Soluble Pigments	5
Production of Melanin Pigments	6
Physiological Test	7
Utilization of Different compounds as Sole Source of	7
Carbon	
Utilization of Different Compounds as Sole Source of	8
Nitrogen	
Antibiotic Activity	8
Sensitivity to Antibiotics	9
RECENT TAXONOMY OF ACTINOMYCETES	9
CHEMOTAXONOMY	10

Peptidoglycan of Actinomycetes	10
DNA Base Composition	11
Lipids of Actinomycetes	11
Phylogenetic Relationship of Actinomycetes	12
Numerical Taxonomy of Actinomycetes	13
OLD SYSTEMS OF ACTINOMYCETES TAXONOMY	14
Waksman's System (1961)	14
Krassilnikov's System (1970)	14
Cross and Goodfellow System (1973)	14
Bergey's Manual (1974)	15
RECENT SYSTEM OF CLASSIFICATION OF ACTINOMYCETES	15
Nocadioform Actinomycetes	15
Actinoplanetes	15
Actinomycetes with multilocular sporangia	15
Streptomyces with Related Genera	15
Maduromycetes	16
Thermonospora and Related Genera	16
Thermoactinomycetes	16
Other Genera	16
GENERIC IDENTIFICATION OF ACTINOMYCETES	16
STREPTOMYCETES OF EGYPTIAN SOIL SERIES	16
Streptomyces Color Series	17
White – Yellow Series of Streptomyces	17
Red Streptomyces Series	18
Gray Streptomyces series	19
Blue – Green Streptomyces Series	19

MATERIALS AND METHODS

	21
MEDIA	
BIOLOGICAL CHARACTERISTICS	25
Morphological Characteristics	25
Cultural Characteristics and Pigmentation	25
PHYSIOLOGICAL CHARACTERISTICS	26
ENZYMATIC ACTIVITY	27
DEGRADATIVE ACTIVITIES OF SOME COMPLEX COMPOUNDS	29
ANTIMICROBIAL CHARACTERISTICS	29
SENSITIVITY TO SOME ANTIBIOTICS	30
TAXANOMICAL IDENTIFICATION	30
LIST OF ABBREVIATIONS	32

EXPERIMENTAL RESULTS

STREPTOMYCES ISOLATES OBTAINED FROM SOILS OF QALUBIA GOVERNORATE	33
DIFFERENTIATION OF ISOLATES INTO COLOR SECTIONS	34