

TABLE OF CONTENTS

	Page
I- AIM OF THE WORK	
II- INTRODUCTION	1
III. LITERATURE REVIEW	
-Insects As Indicators of water quality	3
-Seasonal variations of Benthic Macroinvertebrate communities	9
-Effect of the sewerage system discharge on the aquatic community in urban canals	14
-Enteroviruses biology	16
-Structure of Enteroviruses	20
-Propagation and Assay in cell culture	24
-Epidemiology of Enteroviruses	
-Mechanisms and Route of Transmission	27
-Prevention and control	33
-Rotaviruses	35
-Characteristics of sewage	37
-Disinfection of Polluted water	40
A- Chlorine	41
B- Ozone	45
C- Ultraviolet disinfection	48
VI- Material and Method	
A- Material	52
-Cells	
-Viruses	
-Antisera	
-Medium, antibiotics and cell dispersing solution	53
-Buffers and plaque Assay reagents	54
-Conjugated reagents, and substrates	55
B- Method	
-Comparison of Nitrocellulose and Fiber glass membranes for virus concentration from experimentally seeded Effluents	58

	Page
-Sewage Samples	59
-Sample collection for insects	60
-Identification of viruses in CPE induced samples	61
1- DOT-ELISA	
2- ELISA	
-Description of the sewage treatment plant At Mit Mazah, Dakahlia, Egypt	62
-Determination of Residual Chlorine and ozone in sewage sample	65
-Plaque titration of Poliovirus II and Coxsackievirus B4	67
-Fate of Poliovirus type II and Coxsackievirus B4 during disinfection assay	68
IV Results	
-Virus concentration Assary	70
-Virus isolation in cell culture	72
-Identification of virus isoletes	76
-Assay of Disinfection	85
-Selected chemical-physical water quality for four samples locations	94
-The population of aquatic insects collected in different sea	96
-Insects Figures	99
VI DISCUSSION	114
VII SUMMARY	134
REFERENCES	138
ARABIC SUMMARY	

Aim of the work

- 1- To Evaluate wastewater treatment process at Mit Mazah, (Dakahlia, Egypt) for removal of viruses and aquatic insects.
- 2- To find the relationship between enteroviruses and insects as indicators of water pollution.
- 3- To define the most suitable method for waste water disinfection.