Summary

Forty eight water samples were collected from four sites in Mit Mazah sewage treatment plant at Dakahlia governorate. Samples were collected during (May 1991 to April 1992).

Effluent of two step treatment system

1- Influent of an oxidation or Maturation pond.

2- Maturation pond effluent discharge befor mixing with the receiving Agiculture drain water.

3- 100 meter upstream, before the point of discharge.

4- 100 meter down stream, after discharge point

The results showed that all sampling locations were strongly dominated by four Taxonomic Orders :-

Order : Hemiptera   were presented by 39.8% along the all season.

Order : Odonata   were presented by 31.7% along the all season.

Order : Diptera   were presented by 18% along the all season.

Order : Coleoperta   were presented by 11.6% along the all season.

For virological study two methods of virus concentration were carried out to evaluate the effeicency of different membrane filters for enteroviruses recovery from wastewater. The results showed that no great difference in Nitrocellulose membrane effeicency with and without conditioning where the percentage of recovery were 40% and 30% respectively.

In case of glass microfiber filter the percentage of recovery were 40% and 20% respectively.

The percentage of virus recovery were the same after conditioning; So we started the concentration process with nitrocellulose membrne.

To increase the possibility of virus isolation, three types of cell cultures were used, African green Monkey Kidney (Vero) cells, Buffluo green Monkey (BGM) cells, and Mosquito cell line $C_6 36$.

The results showed that BGM cell lines were more sensitive and speed than vero cell lines enteroviruses isolation, while mosquito cell lines $C_6 36$ were not sensitive.

DOT-ELISA was used to detect enteroviruses in cell culture harvests at the third passage in BGM cell. The results showed that Poliovirus type III was dominont in somples (37.2%) followed by Coxsackievirus type B4 (21.5%), Poliovirus type I (16.6%) Poliovirus type II (13.7%), Coxsackievirus A6 was detcted in 10.7% of the investigated samples. Rotavirus was not detected in all samples. So the wastewater treatment plant faild to remove most enteric viruss investigated.

The results showed the need for more efficient disinfection step for the treated effuents. Chlorine, Ozone, and Ultraviolt radiation were used for virus inactivation. Complete inactivation of Poliovirus type II (Salk strain) obtained at chlorine dose of 20 mg/L (residua chlorine was 1.30 mg/L) detention time was 30 minutes, While the dose for inactivation of Coxsackievirus B4 was 30 mg/L .

In case of Ozone treatment, the doses of ozone used for Poliovius II inactivation were 319 mg/L/h for 17 min for seeded effluent sample, were as for Coxsackievirus B4, the dose must be over 21 min.

In case of the effect of ultraviolet exposure time for disinfection of poliovirus type II and Coxsackievirus B4 were the same 20 secound for seeded effluent samples.

Regression analysis of Polioviruses type II (salk strain) and Coxsackievirus B4 revealed that : with increasing doses of different disinfectants, increase the inactivation effieciency of different viruses. Revealed high regression coeffiecient, this means that Ozone is the most suitable disinfectant for Coxsackievirus B4 and Poliovirus type II were the regression coefficient (r^2) reached to 0.72 for Coxsackievirus B4 and 0.92 for Poliovirus type II.