**Role of Bacterial Additives for Biological Treatment of Domestic Wastewater in Septic Tank**

**Hanan A.Fouad1, Rehab M.Elhefny2, Bahaa A.Hemdan3, Moataz M.Kamel4**

1Associate Prof. of Sanitary and Environmental Engineering, Faculty of Engineering at Shoubra, Benha University, Egypt.

2 Assistant Prof. of Sanitary and Environmental Engineering, Faculty of Engineering at Shoubra, Benha University, Egypt.

3 Environmental Microbiology Lab., Water Pollution Research Dept., National Research Centre, Egypt.

4 Post graduate student of Sanitary and Environmental Engineering, Faculty of Engineering at Shoubra, Benha University, Egypt.

**Abstract**

The main objective of this study was to evaluate the efficiency of bacterial additives for domestic wastewater (DWW) treatment biologically in septic tanks. This work was carried out on two stages. The first stage use different doses of BioWash bacterial additives (100, 150, 200, 250, and 300 mg/L) in a bench scale system that consists of five chambers septic tanks to obtain the optimum dose. On the second stage the effluent wastewater treated with the optimum dose of BioWash bacterial additives would pass through four biofilters to improve the effluent treated wastewater quality in order to reuse it. The physico-chemical and bacteriological parameters for raw and treated effluent of domestic wastewater were analyzed. The obtained results revealed that the level of organic load represented by COD and BOD removal, were reduced up to 98.3% and 96.6% respectively. Moreover, the fecal coliform count was reduced by about 5 log units. The quality of the treated wastewater was found to be within the permissible Egyptian standards. Thus, septic tank system with bacterial additives is a better technology for DWW treatment in small areas.

**Keyword**: Domestic wastewater, Septic tank, Bacterial additives, Coliform group