ABSTRACT

River and other water body pollutions that are caused by domestic waste water can disturb environmental condition c.q. stream becomes bad odor and poisonous, increased pathogenic organism, change in chemical balances, and other undesireds consequences. Recenty interesting development is application of water hyacinth (*Eichhornia crassipes*. Solm), as biofilter in waste water control. . Based on empirical studies in such condition water hyacinth pond offering some advantages c.q. inexpensive cost construction, and other ecological advantages.

The study carried out in experimental scale, and the main purpose is to develop domestic waste water control model which use combination treatment of chemical coagulant and water hyacinth pond effectively and efficiently. These studies include several experiments. The first experiment attempts to examine the influence of kinds and doses of chemical coagulant in increasing quality of domestic waste water. The second experiment attempts to examine of water hyacinth density in increasing quality of domestic waste water . The third experiment ettampts to examine influence of combination role chemical coagulant and water hyacinth in increasing quality of domestic waste water. The fourth experiment attempts to examine the detention time and water hyacinth density in increasing the quality of domestic waste water. The fifth experiment attempts to examine the effectivity of installation waste water control model in the field. The first experiment uses jar test method. The 2^{nd}, 3^{th}, 4^{th}, experiments use Pre and Post Control Design with Randomized Block Design. The 5^{th} experiment use Pre and Post Design.

Based on results and discussions of these researches can be summarized as follows: (1) alum was selected as proper coagulant than the other, (2). the using of water hyacinth as biofilter can reduce concentration of waste water pollutants (BOD decreased from 936 mg/L to 283 mg/l), (3). combination treatment alum and water hyacinth as biofilter can reduce waste water pollutants
effectively and efficiently (BOF decreased from 928 mg/ L to 102 mg/L), (4). the longer detention time ((12,6 minute) can absorp much more waste pollutants than the shorter one (BOD decreased from 986 mg/L to 148 mg/L), (5) combination treatment alum as coagulant and water hyacinth pond can be developed as waste water treatment unit model,

Keywords:

coagulant, water hyacinth, *Eichhornia crassipes*. Solm, domestic waste water, waste water treatment unit, biofiltration, biofilter.