ORGANIC REDUCTION IN SEWAGE BY USING COLLOID MICELLES

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ABSTRACT

The organic matter is one of the materials that play an important role in the environment. The content of the organic matter may influence the capacity of water holding, ability of the soil and nutrient retention, in providing the sufficient nutrients for the growth of the plant. However, many research show that the organic matter is the major pollutant in wastewater. To reduce the organic matter in the wastewater, the colloid micelles, AD NANO, is used as the disinfectant. 7 methods are carried out in this research to determine the capability of AD NANO in reducing the organic matter in the wastewater. Other than that, the efficiency of AD NANO used based on four factors which are solution strength, time, temperature, and mechanical issues are determined. Based on the result, the GC-MS measurement show the total organic matter in the sample while FTIR measurement show the functional group that exist in the sample, which can react with the organic matter. As for the COD test, color test, TSS test, DO test, and turbidity test, the result show the decreased reading for the sample that had been poured with AD NANO. In the nutshell, AD NANO is proved to be one of the disinfectants that is capable of reducing the organic matter in the wastewater. In addition, the efficiency of this kind of treatment is determined by time and solution strength of AD NANO used, and the temperature of the sample is not affected by the use of AD NANO

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CHAPTER 1

INTRODUCTION

In this chapter, the rationale and the background of the study are provided. The details of the type of wastewater treatment are described in more details and the statement of the problems for this research to be made up is explained briefly. In addition, the significance study of the colloid micelles used for the wastewater treatment used is described briefly for its uses and mechanism.

1.1 RESEARCH BACKGROUND

In the daily life, people from around the world will use the fresh water for their own purposes such as bathing, laundry, and carwash. These daily activities show that the water is one of the important source in this world, and according to the research, the water percentage of the Earth is approximately 71 % while the remaining one is the land that covered the Earth [1]. However, as the time goes by, it is believed that the percentage of water of the Earth may be decreased due to the constant usage of water in our daily life. Other than that, the usage of water for the daily activities may cause the production of wastewater, in which the water that had been used which is can be considered as unclean water. The wastewater produced is considered as harmful substance to both of the living things and environment, and the other thing that give rise to the wastewater production is the human faeces. Human faeces is the waste that is produced from the human itself that contained with the undigested food. From a century ago, the society does not have enough knowledge on how to treat the wastewater that had been produced and due to this, a new disease had been formed that can affect the health of the living things and the environment is affected by the pollution that had been existed [2]. Fortunately, this kind of thing does not happen nowadays since the wastewater treatment method had been developed. The development of this treatment has saved the Earth from the reduction of water percentage in which, the wastewater treatment is undergo the recycle process which allow the wastewater to