

DIFFERENCE BETWEEN TIME VARIATION OF AERATION OF BUBBLE AERATOR AND FILTRATION ON REDUCTION OF Fe CONTENT

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ABSTRACT

Water containing high Fe levels can be treated with aeration and filtration methods. The aeration method uses a bubble aerator tool that can produce oxygen through air bubbles in water so that oxygen will dissolve in water. The volume of air released from the bubble aerator is 9 liters/minute. The filtration method serves to filter the precipitated Fe particles resulting from aeration. The purpose of the study was to determine the difference in aeration time variations of bubble aerator and filtration to reduce Fe levels.

The study is included in the type of pre-experiment and uses a one group pretest-posttest only design. Clean water samples were obtained from residents' wells in Semolowaru village, Sukolilo sub-district, Surabaya. The independent variable in this study is the variation of aeration time using bubble aerator and filtration. The dependent variable is the difference in Fe level reduction in clean water. There were 4 groups of aeration time variations, namely before treatment, 10 minutes, 20 minutes, and 30 minutes, and each group was repeated 6 times. Data analysis used is one-way anova test.

The results showed a difference in the decrease in Fe levels with aeration time for 10 minutes and filtration of 36.93%, aeration time for 20 minutes and filtration of 73.13%, and aeration time for 30 minutes and filtration of 91.42%. The result of one-way ANOVA test analysis is that there is a difference in the variation of aeration time of bubble aerator and filtration to reduce Fe levels. The difference in the decrease in Fe levels is influenced by variations in aeration time which the longer will produce a lot of oxygen in contact with Fe and form Fe particles to precipitate, so filtration is carried out so that Fe particles are filtered and do not cause an increase in Fe levels again. The highest decrease in Fe levels was 91.42% using the bubble aerator aeration method for 30 minutes and filtration. Suggestions for researchers who will continue are to check the pH and temperature of the water before and after aeration and filtration treatment, so that they can determine the effect of pH and temperature on reducing Fe levels and the sampling point of well water with high Fe levels is carried out in the same place or Fe levels obtained are equivalent to this study.

Keywords : Clean Water, Fe, Aeration Filtration, Bubble Aerator