

Removal of NOM in Different Water Sources by Coagulation

Elfira Andriyati^[1], Reni Desmiarti^[1], Mulyazmi,^[1] Toshiro Yamada^[2]

[1] Teknik Kimia, Fakultas Teknologi Industri, Universitas Bung Hatta, Padang

[2] Faculty of Engineering Gifu University, Gifu

Elfirandriyati66@gmail.com

ABSTRACT

The characteristics of NOM in sources water were investigated along the river from the upstream to the downstream. The survey was done in three different water sources in different season (autumn and winter) and the water influenced by the rainfall were investigated. The NOM characteristics in each location indicate the water contain of humic acid and protein-like substances based on UV₂₆₀, DOC and EEM analysis. Coagulation also conducted by laboratory scale to see NOM removal due to coagulant that water treatment usually used.

Keyword : NOM, River water, DOC ,Coagulation

INTRODUCTION

Natural organic matters (NOM) is a broad term for the complex mixture of thousands of organic compounds found in water. These techniques are widely used for qualitative and quantitative characterization of NOM (Matilainen et al., 2011). Ultraviolet (UV) absorbance, Fluorescence Excitation –Emission Matrix (F-EEM), and Dissolved Organic Carbon (DOC). Coagulation is widely used due to its relatively low cost and efficiency to remove Disinfection By Products (DBPs) precursors and turbidity.

RESEARCH METHODOLOGY

These sampling location was taken in different areas, Kotaki and Chiiwa are located in upstream and closer to the forest. coagulation occurs in the jartester. Jartester was operated under two conditions which 5 minute rapid mixing (120 rpm) and 10 minute slow mixing (40 rpm). This experiment was performed using two different coagulants Polyalumunium Chloride (PACL) with the dosage 22 mg/L

RESULTS AND DISCUSSION

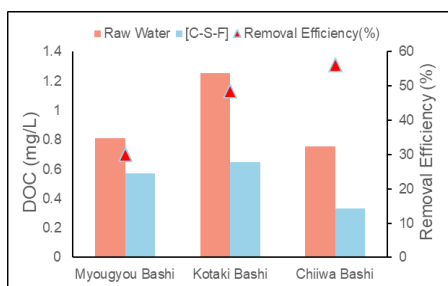


Figure 1. NOM after coagulation characteristics based the value of DOC

DOC value decreased after coagulation, due to PACL can increase NOM removal to a certain point. Chiiwa Bashi is the highest in removal efficiency of NOM in terms of DOC. After coagulation humic substance was decrease, but protein-like substances still present but with low intensity.

CONCLUSIONS

The NOM characteristics in different season (autumn and winter) highly different, based on DOC values the content of natural organic matter in the water decreased to 50-68% during winter season.

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