

## **Performance evaluation of okra (*abelmoschus esculentus*) as coagulant for turbidity removal in water treatment**

### **Abstract**

The objective of this study is to evaluate the performance of turbidity removal in water by using Okra (*Abelmoschus esculentus*) as natural coagulant. The coagulation active agent in various Okra sections was extracted with distilled water and NaCl 1.0 M solutions. Synthetic water containing kaolin with turbidity of 55 NTU was used as water source in this study. The result shows that Okra seed that extracted both with distilled water and NaCl 1.0 N solution has the potential advantage as natural coagulant for turbidity removal in comparison with other sections of the plant. However, the seed is not economically feasible to be used as coagulant. The dried Okras leaf that commonly considered as waste material could be proposed as an alternative coagulant in water treatment process, due to its similarity in coagulation behaviour with Okras seed. FTIR analysis on leaf shows that chemical functional groups in protein were significantly removed after extraction with distilled water and NaCl 1.0 N solution. The result indicated a strong correlation between the protein content and turbidity removal efficiency, which eventually suggest that the protein in Okra could potentially be an active agent in coagulation process.

**Keywords;** Natural Coagulant, Okra, Synthetic Water, Turbidity Removal, Water Treatment