

## ABSTRACT

### THE USE OF ALUMINUM SULPHATE AS FLOKULAN FOR HARVESTING MICROALGAE NANNOCHLOROPSIS SP. ARE CULTIVATED ON CRUMB RUBBER INDUSTRIAL WASTEWATER

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Microalgae *Nannochloropsis sp.* is a photosynthetic microorganism which is potential for energy source or biofuel such as biodiesel and also can be cultivated on the medium crumb rubber industrial wastewater. Harvesting microalgae is one of the stages the most important after the process of cultivation microalgae to produce biomass that can be done by applying a flocculation technique using aluminium sulphate ( $\text{Al}_2\text{SO}_4$ )<sub>3</sub> in appropriate doses. The aim of this research is to find the dosage of aluminum sulphate that produces highest biomass in the process of harvesting microalgae with flocculation technique. This research done by harvesting microalgae *Nannochloropsis sp.* which cultivated in the medium crumb rubber industrial wastewater (75% v/v) in an open reactor with a working volume of 5L for 8 days with flocculation methode using aluminium sulphate ( $\text{Al}_2\text{SO}_4$ )<sub>3</sub> in dose of 50 , 100, 150, 200, 250, 300 mg/L, and 200 mg/L NaOH as a comparison (control).

Observed parameters are cell density, the pH in the end of cultivation and after granting of flocculant, dry biomass, flocculation efficiency, and the extraction of

microalgae oil at its highest biomass. The results showed that microalgae *Nannochloropsis sp.* in the cultivated medium crumb rubber industrial wastewater which was harvested using dose 150 mg/L of the flocculant agent aluminium sulphate ( $\text{Al}_2\text{SO}_4)_3$  by cell density  $4055 \times 10^4$  sel/mL has the highest flocculation efficiency totalling 94,55%, dry biomass 0,7060 g/L, and oil content 23,24%.

*Keywords : Aluminium sulphate, Nannochloropsis sp, waste water*