

## ABSTRACT

Najwa Nabila Salma. 24020121149177. **The Effect of Domestic Waste on the Carbohydrate and Protein Content of *Tetradesmus obliquus* Microalgae with CO<sub>2</sub> Concentration Treatment.** Supervised by Riche Hariyati and Hani Susanti

The microalgae *Tetradesmus obliquus* is a species that has the potential for renewable energy with biomass production with high economic value. This is due to its ability to produce carbohydrate and protein metabolites. This study aims to stimulate the growth and biomass content of *Tetradesmus obliquus* cultivated in domestic wastewater media and given different CO<sub>2</sub> supplementations. The study was conducted using a completely randomized design (CRD) with control media (AF-6) and domestic waste media supplemented with CO<sub>2</sub> at concentrations of 0 mL, 5 mL, 10 mL, and 15 mL. The parameters observed included dry biomass growth, carbohydrate content, and protein content. The results showed that CO<sub>2</sub> supplementation had a significant effect on the growth rate of *Tetradesmus obliquus*. The addition of CO<sub>2</sub> at 15 mL can optimize the increase in dry biomass and encourage the accumulation of carbohydrates and proteins compared to the control. Domestic wastewater media has been proven to be able to support the growth of *Tetradesmus obliquus* equivalent to synthetic media, thus having the potential as an alternative, inexpensive and environmentally friendly media. Thus, this study confirms that the utilization of domestic wastewater with 15 mL CO<sub>2</sub> supplementation can be an effective strategy to increase microalgae biomass production.

Keywords: *Tetradesmus obliquus*, Carbohydrate, Protein, Wastewater