

## ABSTRACT

**Steven Emmanuel Sianturi. 24020121140148. Effectiveness of Palm Fruit (*Elaeis guineensis*) Feeding on the Growth and Microanatomical Structure of Tilapia (*Oreochromis niloticus*) Gills. Under the guidance of Sri Isdadiyanto and Rizki Sandhi Titisari.**

Tilapia (*Oreochromis niloticus*) required high-quality feed, commonly in the form of pellets, but this carried the risk of affecting water quality and gill structure. This study compared the effectiveness of palm fruit and pellets on growth performance, microanatomy of gills, and water quality. The experiment lasted 30 days using a Completely Randomized Design (CRD) with two treatments: K0 (49 fish fed pellets) and K1 (49 fish fed palm fruit). Fish were randomly allocated to each treatment; body length and weight were measured at weeks 0, 2, and 4. Gill samples were collected at the end of the study for histological preparation (paraffin method, HE staining) and measurement of lamella length and width. Water quality (pH, ammonia, temperature, salinity, color, odor, turbidity) was monitored periodically. Data were analyzed using normality, homogeneity, t-test, and Mann–Whitney tests ( $\alpha = 0.05$ ). The results showed no significant differences in body length, body weight, mortality, gill weight, gill damage evaluation, lamella length, or water quality ( $p > 0.05$ ). A significant difference was only found in lamella width ( $p < 0.05$ ), where K1 had thinner lamellae within normal physiological limits. Based on the results of the research, it was concluded that oil palm fruit feed had been effective as an alternative feed for Nile tilapia.

**Keywords:** *Oil palm fruit, Tilapia growth, Gill lamellae, Water quality, Alternative feed.*