

**PENGARUH VARIASI WAKTU FERMENTASI DAUN PEPAYA
(*Carica papaya*) DALAM PAKAN KOMERSIAL TERHADAP LAJU
PERTUMBUHAN DAN SINTASAN IKAN NILA (*Oreochromis niloticus*)**

Oleh

Joy Steven Emmanuel, NIM 2213111001

Jurusan Biologi dan Perikanan Kelautan

ABSTRAK

Budidaya ikan nila (*Oreochromis niloticus*) merupakan salah satu sektor penting dalam akuakultur karena memiliki nilai ekonomi tinggi serta pertumbuhan yang relatif cepat. Namun, tingginya biaya pakan komersial menjadi kendala utama dalam kegiatan budidaya ikan, sehingga diperlukan alternatif bahan pakan yang lebih ekonomis namun tetap bernilai nutrisi tinggi. Salah satu bahan yang berpotensi dimanfaatkan adalah daun pepaya (*Carica papaya*) yang difermentasi. Penelitian ini bertujuan untuk mengetahui pengaruh variasi waktu fermentasi daun pepaya yang dicampurkan dalam pakan komersial terhadap laju pertumbuhan dan sintasan ikan nila serta menentukan lama fermentasi yang paling optimal. Penelitian ini menggunakan metode eksperimen dengan rancangan acak lengkap (RAL) yang terdiri dari empat perlakuan dan tiga ulangan, yaitu perlakuan A (kontrol tanpa fermentasi), perlakuan B (fermentasi 3 hari), perlakuan C (fermentasi 5 hari), dan perlakuan D (fermentasi 7 hari). Benih ikan nila berukuran $\pm 5-7$ cm dengan berat awal $\pm 3-4$ g dipelihara selama 30 hari dengan padat tebar 20 ekor per bak. Parameter yang diamati meliputi pertambahan berat dan sintasan ikan, sedangkan kualitas air meliputi suhu, pH, oksigen terlarut (DO), dan amonia. Data dianalisis menggunakan uji One Way ANOVA yang dilanjutkan dengan uji Duncan. Hasil penelitian menunjukkan bahwa penambahan daun pepaya terfermentasi memberikan pengaruh nyata ($P < 0,05$) terhadap pertambahan berat ikan nila, namun tidak memberikan pengaruh signifikan ($P > 0,05$) terhadap sintasan. Perlakuan terbaik diperoleh pada fermentasi selama 7 hari dengan pertambahan berat rata-rata sebesar 19,53 g dan sintasan mencapai 100%. Parameter kualitas air selama penelitian berada pada kisaran optimal untuk pertumbuhan ikan nila. Berdasarkan hasil penelitian dapat disimpulkan bahwa fermentasi daun pepaya selama 7 hari dalam pakan komersial merupakan waktu fermentasi yang paling optimal untuk meningkatkan pertumbuhan ikan nila tanpa memengaruhi tingkat sintasan.

Kata-kata kunci : fermentasi daun pepaya, pakan alternatif, pertumbuhan ikan nila, sintasan, akuakultur.

EVALUATION OF THE FERMENTATION DURATION OF PAPAYA LEAVES (*Carica papaya*) IN COMMERCIAL FEED AS A SUPPLEMENT FOR THE GROWTH AND SURVIVAL OF NILE TILAPIA (*Oreochromis Niloticus*)

by

Joy Steven Emmanuel, NIM 2213111001

Biology and Marine Fisheries

ABSTRACT

The culture of Nile tilapia (*Oreochromis niloticus*) is one of the important sectors in aquaculture due to its high economic value and relatively fast growth rate. However, the high cost of commercial feed remains a major constraint in fish farming activities. Therefore, alternative feed ingredients that are more economical yet nutritionally valuable are needed. One potential ingredient that can be utilized is fermented papaya leaves (*Carica papaya*). This study aimed to determine the effect of different fermentation durations of papaya leaves mixed with commercial feed on the growth rate and survival of Nile tilapia, as well as to identify the most optimal fermentation duration. This research used an experimental method with a Completely Randomized Design (CRD) consisting of four treatments with three replications: treatment A (control without fermentation), treatment B (3-day fermentation), treatment C (5-day fermentation), and treatment D (7-day fermentation). Nile tilapia fingerlings measuring approximately 5–7 cm with an initial weight of $\pm 3\text{--}4$ g were reared for 30 days with a stocking density of 20 fish per tank. The observed parameters included weight gain and survival rate, while water quality parameters included temperature, pH, dissolved oxygen (DO), and ammonia. The data were analyzed using a One-Way ANOVA followed by Duncan's test. The results showed that the addition of fermented papaya leaves had a significant effect ($P < 0.05$) on the weight gain of Nile tilapia, but did not significantly affect ($P > 0.05$) the survival rate. The best treatment was obtained from the 7-day fermentation, which produced the highest average weight gain of 19.53 g with a survival rate of 100%. Water quality parameters during the study remained within the optimal range for Nile tilapia growth. Based on the results, it can be concluded that fermenting papaya leaves for 7 days in commercial feed is the most optimal fermentation duration for improving the growth of Nile tilapia without affecting their survival rate.

Keywords : papaya leaf fermentation, alternative feed, Nile tilapia growth, survival rate, aquaculture.