

INTISARI

Pengaruh suplementasi tepung daun ubi jalar oranye dalam pakan terhadap ekspresi gen transpor nutrisi, histomorfologi usus, dan pertumbuhan benih ikan nila merah (*Oreochromis* sp.)

Keberadaan tepung ikan yang terbatas menuntut pencarian alternatif sumber protein untuk bahan pakan ikan yang dibudidayakan. Penelitian ini bertujuan untuk menganalisis kandungan nutrisi tepung daun ubi jalar oranye dan pengaruh suplementasi tepung daun ubi jalar oranye dalam pelet pakan ikan sebanyak 100:0 (kontrol), 5:95, 10:90, dan 15:85 terhadap pertumbuhan, sintasan, FCR, histomorfologi dan ekspresi gen transpor asam amino dan peptida pada usus benih ikan nila merah (*Oreochromis* sp.). Daun ubi jalar dikeringkan pada suhu 55°C selama 8 jam dan digiling hingga menjadi tepung. Tepung daun diaplikasikan pada pelet dengan perekat progol dan dikeringkan pada suhu 60°C selama 4 jam. Perlakuan pakan diberikan sebanyak 5% biomassa perhari selama 60 hari pemeliharaan. Pengujian statistik yang dilakukan dalam penelitian ini terdiri dari pengujian ANOVA (*one-way analysis of variance*) dan uji Tukey (untuk mengetahui perbandingan antar perlakuan). Hasil penelitian menunjukkan bahwa tepung daun ubi jalar oranye mengandung protein sebesar $22,91 \pm 0,86\%$. Suplementasi tepung daun ubi jalar oranye dalam pelet menghasilkan pertumbuhan, sintasan, FCR, dan histomorfologi usus benih ikan nila merah yang sama dengan pakan kontrol (100% pakan komersial). Suplementasi 5:95 meningkatkan ekspresi gen pengangkut asam amino, sementara suplementasi 10:90 menurunkan ekspresi gen pengangkut peptida pada usus benih ikan nila merah (*Oreochromis* sp.). Temuan ini menunjukkan bahwa tepung daun ubi jalar oranye berpotensi menjadi sumber protein pakan benih ikan nila merah (*Oreochromis* sp.). Suplementasi tepung daun ubi jalar oranye dalam pakan hingga 15:85 tidak menimbulkan efek gangguan pertumbuhan, sintasan, dan histomorfologi usus benih nila merah (*Oreochromis* sp.).

Kata kunci: tepung daun ubi jalar oranye, histomorfologi, transpor nutrisi, ikan nila merah

ABSTRACT

The effect of orange sweet potato leaf flour supplementation in feed on nutrition transport gene expression, intestinal histomorphology, and growth of red tilapia (*Oreochromis sp.*) fry

The limited availability of fish meal necessitates the search for alternative protein sources for farmed fish feed. This study aimed to analyze the nutritional content of orange sweet potato leaf flour and the effect of orange sweet potato leaf flour supplementation in feed at 100:0 (control), 5:95, 10:90, and 15:85 on growth, survival, FCR, histomorphology, and expression of amino acid and peptide transport genes in the intestines of red tilapia (*Oreochromis sp.*) fry. Orange sweet potato leaves were dried at 55°C for 8 hours and ground into flour. The leaf flour was applied to the pellets with progol adhesive and dried at 60°C for 4 hours. Feed treatments were given at 5% of biomass per day for 60 days of rearing. Statistical tests conducted in this study consisted of ANOVA (one-way analysis of variance) and Tukey's test (to determine comparisons between treatments). The results showed that orange sweet potato leaf flour contains $22.91 \pm 0.86\%$ protein. The orange sweet potato leaf flour supplementation in feed resulted in the same growth, survival, FCR, and intestinal histomorphology of red tilapia fry as the control feed (100% commercial feed). The 5:95 supplementation increased the expression of amino acid transporter genes, while 10:90 supplementation decreased the expression of peptide transporter genes in the intestines of red tilapia fry (*Oreochromis sp.*). These findings indicate that orange sweet potato leaf flour has the potential to be a source of protein in red tilapia fry (*Oreochromis sp.*) feed. The orange sweet potato leaf flour supplementation in feed up to 15:85 did not cause any effects on growth, survival, and intestinal histomorphology of red tilapia fry (*Oreochromis sp.*).

Keywords: orange sweet potato leaf flour, histomorphology, nutrient transport, red tilapia