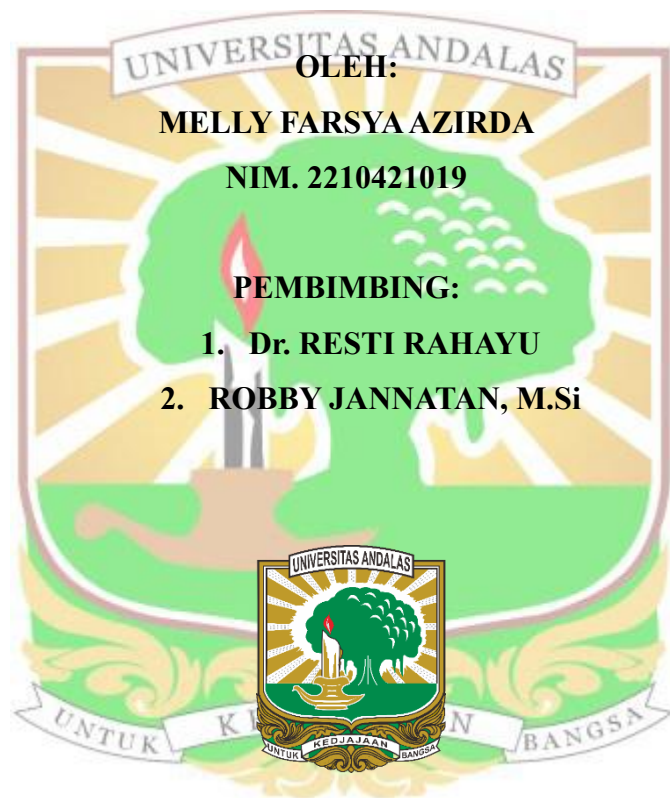


**PENGARUH PAKAN BERBASIS MAGGOT (*Hermetia illucens*) DAN
INDIGOFERA (*Indigofera zollingeriana*) TERHADAP KUALITAS FISIK
PAKAN, KUALITAS DAGING, DAN HISTOLOGI OTOT IKAN NILA**

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ABSTRAK

Tepung ikan merupakan sumber protein utama dalam pakan ikan, namun ketersediaannya yang semakin terbatas mendorong pemanfaatan bahan pakan alternatif seperti larva *Hermetia illucens* (maggot) dan *Indigofera zollingeriana*. Penelitian ini bertujuan untuk menganalisis pengaruh kombinasi maggot dan *I. zollingeriana* dalam pakan terhadap komposisi proksimat, tekstur (hardness), dan struktur histologi otot dorsal ikan nila (*Oreochromis niloticus*). Penelitian menggunakan Rancangan Acak Lengkap (RAL) dengan lima perlakuan, yaitu P1 (100% pakan komersial), P2 (maggot segar 100%), P3 (pakan komersial pagi hari dan pelet A sore hari), P4 (pakan komersial pagi hari dan pelet C sore hari), serta P5 (pakan komersial pagi hari dan pelet E sore hari), masing-masing sebanyak 50% dari kebutuhan pakan harian. Parameter yang diamati meliputi komposisi proksimat daging, nilai hardness menggunakan *Texture Analyzer* metode *Puncture Test*, serta histomorfometri otot dorsal melalui pengukuran luas dan kepadatan serabut otot. Data dianalisis menggunakan uji ANOVA dan dilanjutkan uji Duncan pada taraf kepercayaan 95%, sedangkan data yang tidak memenuhi asumsi dianalisis menggunakan uji Kruskal–Wallis. Hasil penelitian menunjukkan bahwa pemberian kombinasi maggot dan *I. zollingeriana* tidak memberikan pengaruh nyata ($P>0,05$) terhadap komposisi proksimat, nilai hardness, maupun luas dan kepadatan serabut otot ikan nila. Meskipun demikian, secara deskriptif perlakuan P5 menghasilkan kadar protein dan nilai hardness tertinggi, sedangkan perlakuan P4 menunjukkan luas serabut otot terbesar. Secara keseluruhan, kombinasi maggot dan *I. zollingeriana* berpotensi digunakan sebagai bahan pakan alternatif karena mampu mempertahankan kualitas nutrisi, tekstur, dan struktur otot ikan nila setara dengan pakan komersial.

Kata kunci: *Hermetia illucens*, *Indigofera zollingeriana*, ikan nila, komposisi proksimat, hardness, histologi otot.



ABSTRACT

Fish meal is the primary protein source in aquaculture feeds; however, its increasingly limited availability has encouraged the use of alternative feed ingredients, such as *Hermetia illucens* larvae (black soldier fly larvae, BSF) and *Indigofera zollingeriana*. This study aimed to evaluate the effect of dietary supplementation with a combination of BSF larvae and *I. zollingeriana* on the proximate composition, meat texture (hardness), and dorsal muscle histological structure of Nile tilapia (*Oreochromis niloticus*). The experiment employed a Completely Randomized Design (CRD) consisting of five treatments: P1 (100% commercial feed), P2 (100% fresh BSF larvae), P3 (commercial feed in the morning and pellet A in the afternoon), P4 (commercial feed in the morning and pellet C in the afternoon), and P5 (commercial feed in the morning and pellet E in the afternoon), with each feed accounting for 50% of the daily feeding requirement. The observed parameters included the proximate composition of fish flesh, hardness measured using a Texture Analyzer with the Puncture Test method, and dorsal muscle histomorphometry based on muscle fiber area and muscle fiber density. Data were analyzed using one-way ANOVA followed by Duncan's multiple range test at a 95% confidence level, while data that did not meet the assumptions were analyzed using the Kruskal–Wallis test. The results showed that dietary supplementation with a combination of BSF larvae and *I. zollingeriana* had no significant effect ($P > 0.05$) on the proximate composition, hardness, or muscle fiber area and density of Nile tilapia. Nevertheless, descriptively, treatment P5 exhibited the highest protein content and hardness value, whereas treatment P4 showed the largest muscle fiber area. Overall, the combination of BSF larvae and *I. zollingeriana* has the potential to serve as an alternative feed ingredient by maintaining the nutritional quality, texture, and muscle structure of Nile tilapia at levels comparable to those achieved with commercial feed.

Keywords: *Hermetia illucens*, *Indigofera zollingeriana*, Nile tilapia, proximate composition, hardness, muscle histology.