

## RINGKASAN

Ikan nila (*Oreochromis niloticus*) merupakan salah satu komoditi perikanan air tawar yang banyak dikonsumsi. Pemberian pakan dalam kegiatan budidaya perikanan bergantung pada tingkat stadia ikan. Jenis pakan yang sering diberikan pada larva ikan adalah pakan alami dan pakan buatan. Salah satu alternatif pakan buatan yang dapat diberikan adalah pakan dalam bentuk mikrokapsul. Hal ini bertujuan supaya nutrisi dalam pakan tidak mudah larut dalam air dan mampu terserap secara efektif oleh larva ikan nila. Maggot dapat dijadikan sebagai salah satu bahan baku pakan alternatif ikan karena memiliki kandungan protein yang cukup tinggi. Penelitian pakan dalam bentuk mikrokapsul dari tepung maggot berbeda instar belum pernah diteliti sehingga perlu dikaji lebih lanjut mengenai pakan ikan tersebut. Selain faktor nutrisi, laju pertumbuhan dan sintasan larva ikan juga dipengaruhi oleh temperatur air. Temperatur air yang ideal untuk budidaya ikan nila berkisar dari 28-32°C. Penelitian ini bertujuan untuk mengetahui performa pertumbuhan dan perkembangan larva ikan nila dengan pemberian pakan mikrokapsul maggot (*Hermetia illucens*) berbeda instar dalam temperatur yang berbeda.

Penelitian dilaksanakan pada bulan Mei-Oktober 2023 selama 6 bulan. Metode penelitian yang digunakan berupa rancangan percobaan RAL pola faktorial dengan 2 faktor yaitu jenis pakan dan temperatur. Faktor jenis pakan terdiri dari 3 perlakuan yaitu pemberian pakan mikrokapsul maggot BSF instar 4 (P1); pemberian pakan mikrokapsul maggot BSF instar 5 (P2); dan pemberian pakan mikrokapsul maggot BSF instar 6 (P3). Faktor temperatur yang diberikan terdiri dari 3 perlakuan yaitu temperatur air 28°C (T1); temperatur air 30°C (T2); temperatur air 32°C (T3). Masing-masing perlakuan diulang sebanyak 5 kali. Parameter yang diamati dalam penelitian ini berupa penambahan bobot dan panjang mutlak, SGR, RGR, FCR, sintasan, penambahan panjang sirip, penambahan lebar bukaan mulut dan panjang serta bobot intestine, kemudian dianalisis ragam *Two Way ANOVA* dengan uji lanjut Duncan. Data mengenai perkembangan morfoanatomi bukaan mulut, perkembangan sirip dorsal, sirip caudal, sirip anal serta pengamatan intestine dianalisis secara deskriptif.

Hasil penelitian menunjukkan bahwa pemberian mikrokapsul maggot instar 4, 5, dan 6 dengan temperatur 32°C memberikan pengaruh paling baik terhadap penambahan bobot dan panjang mutlak, SGR dan RGR. Namun, pemberian mikrokapsul maggot instar 4 dengan temperatur 32°C memiliki nilai tertinggi dengan penambahan bobot  $0,095 \pm 0,04$  g, penambahan panjang  $8,44 \pm 0,23$  mm, SGR 6,8%, dan RGR 581%. Pemberian pakan mikrokapsul maggot instar 6 dengan temperatur 30°C menghasilkan penambahan bukaan mulut terbaik yaitu  $1,149 \pm 0,54$  mm. Pemberian pakan mikrokapsul maggot instar 5 dengan temperatur 32°C menghasilkan FCR terbaik yaitu 0,48. Interaksi pemberian pakan mikrokapsul maggot berbeda instar dengan temperatur tidak berpengaruh terhadap sintasan, penambahan panjang sirip dorsal, penambahan panjang sirip caudal, penambahan panjang sirip anal, panjang dan bobot intestine. Kesimpulan dari penelitian ini adalah bahwa pemberian mikrokapsul maggot BSF instar 4, 5, dan 6 dengan variasi temperatur berbeda mempengaruhi penambahan bobot dan panjang mutlak, SGR, RGR, FCR, serta lebar bukaan mulut.

Kata kunci: *maggot BSF, mikrokapsul, Oreochromis niloticus, pertumbuhan, perkembangan*

## SUMMARY

Tilapia (*Oreochromis niloticus*) is one of the freshwater fisheries commodities that is widely consumed. Feeding in fish farming activities depends on the stage level of the fish. The types of feed that are often given to fish larvae are natural feed and artificial feed. Artificial feed in the form of microcapsules is an alternative that can be given. This aims to ensure that the nutrients in the feed do not dissolve easily and can be absorbed effectively by the tilapia larvae. BSF (Black Soldier Fly) larvae can be used as a raw material for alternative fish feed because they have quite high protein content. Research on feed in the form of microcapsules from BSF larvae flour from different instars has not been studied so it is necessary to study further the application of this fish feed. Apart from nutritional factors, the growth rate and survival rate of fish larvae are also influenced by water temperature. The ideal water temperature for cultivating tilapia ranges from 28-32°C. This research aims to determine the growth and development performance of tilapia larvae by feeding BSF larvae microcapsules (*Hermetia illucens*) of different instars at different temperatures.

The research was carried out May to October 2023 during six months. The research method used was a factorial experiment completely randomized design with 2 treatment factors, namely type of feed and temperature. The type of feed factor consists of 3 treatments, feeding BSF larvae microcapsules instar 4 (P1); feeding BSF larvae microcapsules instar 5 (P2); feeding BSF larvae microcapsules instar 6 (P3). The temperature factor given consists of 3 treatments, water temperature condition of 28°C (T1); water temperature condition of 30°C (T2); water temperature condition of 32°C (T3). Each treatment was repeated 5 times. The parameters observed in this study were weight gain and absolute length, Specific Growth Rate (SGR), Relative Growth Rate (RGR), Feed Conversion Rate (FCR), survival, increase in fin length, increase in mouth opening, length and weight of the intestine analyzed by Two Way ANOVA with Duncan's advanced test. Data regarding the development of the morphoanatomy of the mouth opening, the development of the dorsal fin, caudal fin, anal fin, and observations of the intestine were analyzed descriptively.

The results showed that feeding microcapsules of BSF instar 4, 5, and 6 larvae at a temperature of 32°C resulted in the best increase in weight and length, SGR and RGR. However, feeding microcapsules of BSF instar 4 larvae at a temperature of 32°C had the highest value with a weight gain of  $0,095 \pm 0,04$  g, length increase  $8,44 \pm 0,23$  mm, the SGR 6.8%, and the RGR 581%. Feeding microcapsules of BSF instar 6 larvae at a temperature of 30°C resulted in the best increase in mouth opening, namely  $1,149 \pm 0,54$  mm. Feeding microcapsules of BSF instar 5 larvae at a temperature of 32°C resulted in the best FCR namely 0,48. The interaction between feeding microcapsules of BSF instar 4, 5, and 6 larvae with temperature variations had no effect on survival, increase in dorsal fin length, increase in caudal fin length, increase in anal fin length, length and weight of the intestine. The conclusion of this study is that the feeding of BSF instar 4, 5, and 6 larvae microcapsules with different temperature variations affects the growth of absolute weight and length, growth rate, FCR, mouth opening width.

*Key words: BSF larvae, developments, growth, microcapsules, Oreochromis niloticus*