RINGKASAN

Pembenihan ikan nila di Indonesia mengalami peningkatan seiring dengan meningkatnya produktivitas budidaya ikan nila dari tahun 2018-2022. Faktor yang mendukung keberhasilan pembenihan ikan nila adalah pakan berkualitas baik dan sesuai bukaan mulut ikan. Ukuran pakan yang tidak sesuai bukaan mulut serta pakan yang mudah larut di dalam air menjadi salah satu penyebab kematian larva ikan nila. Solusi mengatasi permasalahan ini salah satunya menggunakan pakan mikrokapsul maggot BSF berbagai instar. Tujuan penelitian ini untuk mengetahui performa pertumbuhan dan perkembangan morfoanatomi larva ikan nila (*Oreochromis niloticus*) yang diberi pakan mikrokapsul maggot *Hermentia illucens* berbagai instar. Penelitian ini dilakukan pada bulan Desember 2023–Maret 2024 menggunakan metode eksperimental dengan rancangan percobaan berupa RAL yang terdiri dari 4 perlakuan dan setiap perlakuan terdiri dari 7 ulangan. Perlakuan berupa (P0) yaitu pakan komersial larva ikan, (P1) yaitu pakan mikrokapsul maggot BSF instar 4, (P2) yaitu pakan mikrokapsul maggot BSF instar 5, dan (P3) yaitu pakan mikrokapsul maggot BSF instar 6. Data perhitungan dianalisis menggunakan uji ragam *One-Way* ANOVA tingkat kepercayaan 95% dengan uji lanjut BNT. Hasil pengamatan morfoanatomi bukaan mulut dan sirip, serta kualitas air dianalisis secara deskriptif.

Hasil penelitian menunjukkan bahwa pemberian pakan komersial dan mikrokapsul berbagai instar tidak berpengaruh nyata terhadap performa pertumbuhan dan perkembangan morfoanatomi larva ikan nila. Hasil pengamatan dari seluruh perlakuan diperoleh pertambahan bobot berkisar 0,031–0,033 g, pertambahan panjang berkisar 4,01–4,30 mm, laju pertumbuhan relatif berkisar 262,88–299,13%, laju pertumbuhan spesifik berkisar 4,40–4,79%, pertambahan lebar bukaan mulut berkisar 0,16–0,22 mm, pertambahan panjang sirip dorsal berkisar 2,79–3,06 mm, pertambahan lebar sirip dorsal berkisar 0,42–0,45 mm, pertambahan panjang sirip ventral berkisar 1,36–1,51 mm, pertambahan lebar sirip ventral berkisar 0,49–0,54 mm, pertambahan panjang sirip anal berkisar 0,87–1,03 mm, pertambahan lebar sirip anal berkisar 0,56–0,62 mm, pertambahan panjang sirip caudal berkisar 1,33–1,46 mm, pertambahan lebar sirip caudal berkisar 0,89–0,96 mm, pertambahan bobot intestin berkisar 19,36–23,14 mm, pertambahan panjang intestin berkisar 0,0057–0,0068 mm, dan tingkat kelangsungan hidup berkisar 64–63,57 %. Sedangkan hasil pengukuran kualitas air dari 4 perlakuan yaitu pH berkisar 7,9–8,3, suhu air berkisar 27–28°C, dan oksigen terlarut berkisar 5,27–6,2 mg/L. Berdasarakan hasil analisis uji ragam *one-way* ANOVA, pemberian pakan mikrokapsul maggot *Hermentia illucens* berbagai instar tidak berpengaruh terhadap performa pertambahan bobot dan panjang, laju pertumbuhan relatif dan spesifik, perkembangan lebar bukaan mulut, panjang dan lebar sirip (dorsal, ventral, anal, dan caudal), panjang intestin, serta tingkat kelangsungan hidup larva ikan nila ($P>0,05$). Namun, pakan mikrokapsul instar 4 berpengaruh nyata meningkatkan perkembangan bobot intestin larva ikan nila ($P<0,05$) dibandingan pakan komersial. Berdasarkan hasil yang diperoleh dapat disimpulkan bahwa performa pertumbuhan dan perkembangan morfoanatomi larva ikan nila (*Oreochromis niloticus*) yang diberi pakan komersial dan mikrokapsul maggot *Hermentia illucens* berbagai instar memiliki nilai yang relatif sama. Dengan demikian, penggunaan mikrokapsul maggot BSF berbagai instar dapat digunakan sebagai pengganti pakan komersial selama pemeliharaan larva ikan nila.

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

SUMMARY

Tilapia hatcheries in Indonesia have increased in line with the increasing productivity of tilapia farming from 2018-2022. Factors that support the success of tilapia hatcheries are good quality feed and fish mouth opening. The size of feed that does not fit the mouth opening and feed that easily dissolves in water is one of the causes of tilapia larvae death. One solution to overcome this problem is to use microcapsule feed of BSF maggot of various instars. The purpose of this study was to determine the growth performance and morphoanatomical development of tilapia larvae (*Oreochromis niloticus*) fed with *Hermentia illucens* maggot microcapsules of various instars. This study was conducted in December 2023-March 2024 using an experimental method with a RAL experimental design consisting of 4 treatments and each treatment consisted of 7 replicates. The treatments were (P0) commercial fish larvae feed, (P1) microcapsule BSF maggot instar 4 feed, (P2) microcapsule BSF maggot instar 5 feed, and (P3) microcapsule BSF maggot instar 6 feed. The calculation data were analyzed using the One-Way ANOVA variance test at the 95% confidence level with the BNT further test. The results of morphoanatomical observations of mouth and fin openings, and water quality were analyzed descriptively.

The results showed that feeding commercial feed and microcapsules of various instars did not significantly affect the growth performance and morphoanatomical development of tilapia larvae. The observation results of all treatments obtained weight gain ranged from 0.031–0.033 g, length gain ranged from 4.01–4.30 mm, relative growth rate ranged from 262.88–299.13%, specific growth rate ranged from 4.40–4.79%, mouth opening width gain ranged from 0.16-0.22 mm, dorsal fin length gain ranged from 2.79–3.06 mm, dorsal fin width gain ranged from 0.42–0.45 mm, ventral fin length gain ranged from 1.36–1.51 mm, ventral fin width increment ranging from 0.49–0.54 mm, anal fin length increment ranging from 0.87–1.03 mm, anal fin width increment ranging from 0.56–0.62 mm, caudal fin length increment ranging from 1.33–1, 46 mm, caudal fin width increment ranged from 0.89-0.96 mm, intestine weight increment ranged from 19.36–23.14 mm, intestine length increment ranged from 0.0057–0.0068 mm, and survival rate ranged from 64–63.57%. While the results of water quality measurements from 4 treatments are pH ranging from 7.9–8.3, water temperature ranging from 27-28°C, and dissolved oxygen ranging from 5.27–6.2 mg/L. Based on the results of one-way ANOVA analysis of variance, feeding various instars of *Hermentia illucens* maggot microcapsules did not affect the performance of weight and length gain, relative and specific growth rates, development of mouth opening width, fin length and width (dorsal, ventral, anal, and caudal), intestine length, and survival rate of tilapia larvae ($P>0.05$). However, the 4th instar microcapsule feed significantly increased the development of intestine weight of tilapia larvae ($P<0.05$) compared to commercial feed. Based on the results obtained, it can be concluded that the growth performance and morphoanatomical development of tilapia larvae (*Oreochromis niloticus*) fed with commercial feed and *Hermentia illucens* maggot microcapsules of various instars have relatively similar values. Thus, the use of BSF maggot microcapsules of various instars can be used as a substitute for commercial feed during tilapia larvae rearing.

Keywords: BSF maggot, development, growth, microcapsules, *Oreochromis niloticus*