

SUMMARY

Nilem fish (*Osteochillus vittatus*) was freshwater fish that was widely cultivated, but most of them have not been done intensively, so the results were not optimal. The success of Nile fish (*O. vittatus*) cultivation was strongly influenced by the availability of sufficient feed, so effective and efficient feed management was needed. Conventional feed sometimes does not contain enough nutrients to meet fish feed needs, so supplementation was needed. Supplementation was needed in fish cultivation to spur fish health. One supplement that can be used in fish cultivation was *C. vulgaris*. *Chlorella vulgaris* was one of the potential microalgae as an immunostimulant because it contained high protein, vitamins, minerals, fats, polysaccharides, and other nutrients. The problem that was often faced in fish cultivation was a disease that can cause a decrease in the level of fish production, so it was necessary to detect immunity status in fish. One way to detect immune status was to measure total protein levels. The objectives of this research were (1) knowing the effect of different dosages of *C. vulgaris* supplementation in feed on total protein levels of Nile fish (*O. vittatus*) serum; (2) getting the best dosage of *C. vulgaris* supplementation in feed to increase the total protein level of Nile fish (*O. vittatus*) serum. The research method used was an experimental research method with a completely randomized design (CRD) with five treatments and four replications. The treatments were (P0) Nile fish (*O. vittatus*) were given commercial feed without *C. vulgaris* supplementation; (P1-P4) Nile fish (*O. vittatus*) were given supplementation of *C. vulgaris* 2, 3, 4, and 6 g.kg⁻¹ of commercial feed.

The variables in this research consisted of independent and dependent variables. The independent variable in this research was the various doses of *C. vulgaris* given to Nile fish (*O. vittatus*), while the dependent variable was the change in the total protein level of Nile fish (*O. vittatus*) serum. The parameter was the total protein level of Nile fish (*O. vittatus*) serum. Measurement of total protein levels serum used was the biuret method with a dyasis kit and spectrophotometer. Measurement of total protein levels serum was carried out twice, before treatment (day 0) and after treatment (57th day). The results of the research data were statistically analyzed using analysis of variance (ANOVA) with an error rate of 5%, then continued with the least significant difference (LSD) test. The results showed that the different dosages of *C. vulgaris* supplementation in feed increased the total protein levels of Nile fish (*O. vittatus*) serum ($p < 0.05$). Supplementation dose of *C. vulgaris* 6 g.kg⁻¹ commercial feed was the best dose to increase the total protein level of Nile fish (*O. vittatus*) serum. At this dose showed an average result of total protein levels of 5.51 g.dL⁻¹, which was in accordance with its normal limit, which ranged from 5-8 g.dL⁻¹.

Keywords: *Chlorella vulgaris*, Nile fish (*Osteochillus vittatus*), supplementation, total protein serum.

RINGKASAN

Ikan Nilem (*Osteochillus vittatus*) adalah ikan air tawar yang banyak dibudidayakan tetapi sebagian besar belum dilakukan secara intensif, sehingga hasilnya belum optimal. Keberhasilan budidaya ikan Nilem (*O. vittatus*) sangat dipengaruhi oleh ketersediaan pakan yang cukup sehingga diperlukan manajemen pakan yang efektif dan efisien. Pakan konvensional terkadang tidak mengandung nutrisi yang cukup untuk memenuhi kebutuhan pakan ikan, sehingga diperlukan suplementasi. Suplementasi dibutuhkan dalam budidaya ikan untuk memacu kesehatan ikan. Salah satu suplemen yang dapat digunakan dalam budidaya ikan adalah *C. vulgaris*. *Chlorella vulgaris* adalah salah satu mikroalga yang berpotensi sebagai imunostimulan karena mengandung protein tinggi, vitamin, mineral, lemak, polisakarida, dan zat gizi lainnya. Permasalahan yang sering dihadapi dalam budidaya ikan adalah penyakit yang dapat menyebabkan penurunan tingkat produksi ikan, sehingga perlu adanya deteksi status imunitas pada ikan. Salah satu cara untuk mendeteksi status imunitas adalah dengan mengukur kadar total protein. Tujuan dari penelitian ini adalah (1) mengetahui pengaruh perbedaan dosis suplementasi *C. vulgaris* dalam pakan terhadap kadar total protein serum ikan Nilem (*O. vittatus*); (2) mendapatkan dosis suplementasi *C. vulgaris* dalam pakan yang terbaik untuk meningkatkan kadar total protein serum ikan Nilem (*O. vittatus*). Metode penelitian menggunakan metode penelitian eksperimental dengan Rancangan Acak Lengkap (RAL) dengan lima perlakuan dan empat kali ulangan. Perlakuan nya yaitu (P0) ikan Nilem (*O. vittatus*) diberi pakan komersial tanpa suplementasi *C. vulgaris*; (P1-P4) ikan Nilem (*O. vittatus*) diberi suplementasi *C. vulgaris* 2, 3, 4, dan 6 g.kg⁻¹ pakan komersial.

Variabel dalam penelitian ini terdiri dari variabel bebas dan terikat. Variabel bebas dalam penelitian ini adalah berbagai dosis *C. vulgaris* yang diberikan pada ikan Nilem (*O. vittatus*), sedangkan variabel terikat adalah perubahan kadar total protein serum ikan Nilem (*O. vittatus*). Parameternya adalah kadar total protein serum ikan Nilem (*O. vittatus*). Pengukuran kadar total protein serum menggunakan metode biuret dengan kit dyasis dan spektrofotometer. Pengukuran kadar total protein serum dilakukan dua kali, sebelum perlakuan (hari ke-0) dan setelah perlakuan (hari ke-57). Hasil data penelitian dianalisis secara statistik menggunakan *analysis of variance* (ANOVA) dengan tingkat kesalahan 5%, kemudian dilanjutkan dengan uji lanjut Beda Nyata Terkecil (BNT). Hasil penelitian menunjukkan bahwa perbedaan dosis suplementasi *C. vulgaris* dalam pakan meningkatkan kadar total protein serum ikan Nilem (*O. vittatus*) ($p < 0,05$). Dosis suplementasi *C. vulgaris* 6 g.kg⁻¹ pakan komersial adalah dosis yang terbaik untuk meningkatkan kadar total protein serum ikan Nilem (*O. vittatus*). Pada dosis tersebut menunjukkan hasil rata-rata kadar total protein yaitu 5.51 g.dL⁻¹, yang mana telah sesuai dengan batas normal-nya yaitu berkisar antara 5-8 g.dL⁻¹.

Kata Kunci: *Chlorella vulgaris*, Ikan nilem (*Osteochillus vittatus*), suplementasi, total protein serum.