RINGKASAN

Ikan tawes (*Barbonymus gonionotus* Bleeker, 1849) merupakan salah satu ikan air tawar asli Indonesia yang telah banyak dibudidayakan, dinilai mampu dijadikan komoditas unggul, dan sering dikonsumsi masyarakat. Aspek reproduksi menjadi penting untuk menentukan keberhasilan sekaligus keberlanjutan budidaya ikan tawes. Keberhasilan fertilisasi dan produksi benih sangat ditentukan oleh berbagai faktor, antara lain tingkat kematangan gonad dan penggunaan gamet yang berkualitas dari induk jantan. Analisis kualitas milt dan pengamatan testis secara histologis menjadi upaya dalam memperkirakan kesiapan reproduksi induk jantan ikan tawes. Penelitian ini bertujuan untuk mengetahui kualitas milt, gambaran histologis testis dan tahapan spermatogenik ikan tawes pada periode 0, 1, 2, dan 3 minggu pascamijah, serta mengetahui rentang waktu yang diperlukan induk ikan tawes jantan pascamijah untuk matang gonad kembali. Informasi tersebut terutama pada ikan tawes jantan belum banyak dijumpai sehingga perlu diteliti.

Penelitian dilakukan pada bulan Juli 2023 hingga Januari 2024 dengan metode observasi. Data diambil dari induk ikan tawes jantan pada minggu ke 0, 1, 2, dan 3 pascamijah. Pada setiap minggu pengambilan data, diambil 6 ekor induk ikan tawes jantan pascamijah secara acak untuk evaluasi kualitas milt, 3 ekor di antaranya dikorbankan untuk pembuatan sediaan histologis. Data kualitatif meliputi warna milt dan gambaran histologis testis dianalisis secara deskriptif dan disajikan dalam bentuk *photomicrograph*. Data kuantitatif meliputi volume milt, kepadatan spermatozoa, dan proporsi masing-masing tahapan spermatogenik dianalisis korelasi dan regresi, pH milt disajikan dalam tabel, dan persentase motilitas spermatozoa dianalisis secara subyektif.

Hasil penelitian menunjukkan volume milt, pH milt, dan persentase motilitas yang dievaluasi pada minggu ke 0, 1, 2, dan 3 pascamijah berturut-turut adalah sebagai berikut, volume milt: 1,73 ± 0,77 ml, 0,77 ± 0,54 ml, 0,92 ± 0,55 ml, dan 0,38 ± 0,21 ml; pH: 7,5 ± 0,55, 6,7 ± 0,52, 7,0 ± 0,00, dan 7,0 ± 0,00; motilitas spermatozoa: 95 ± 5,48%, 93 ± 12,11%, 100 ± 0,00%, dan 100 ± 0,00%. Warna milt yang diperoleh adalah putih susu hingga putih tulang. Kepadatan spermatozoa milt dari minggu ke-0 hingga minggu ke-3 berturut-turut 2,16 ± 0,98 x 10^{11} sel/ml; 2,29 ± 0,85 x 10^{11} sel/ml; 3,17 ± 1,74 x 10^{11} sel/ml; dan 4,38 ± 1,36 x 10^{11} sel/ml. Pengamatan histologis testis menunjukkan testis ikan tawes bertipe lobular, semua tahapan sel-sel spermatogenik teramati dan masing-masing tahapan berada dalam kista. Proporsi lobula dari minggu ke-0, 1, 2, dan 3 pada tahap spermatogonia cenderung stabil; spermatosit primer, spermatosit sekunder, dan spermatid fluktuatif; spermatozoa mendominasi dan secara linier meningkat hingga minggu ke-3 pascamijah dengan persamaan y = 1,0142x + 4,5225 dan nilai koefisien determinasi (R^2) sebesar 0,3226. Berdasarkan hasil penelitian, disimpulkan bahwa kualitas milt ikan tawes periode 0, 1, 2, dan 3 minggu pascamijah menunjukkan kualitas yang baik; pengamatan histologis testis memperlihatkan seluruh tahapan spermatogenik teramati dengan didominasi proporsi sel spermatozoa; dan ikan tawes pascamijah dalam penelitian ini diperkirakan berpotensi untuk dipijahkan kembali pada minggu ke-3 pascamijah dengan metode pemijahan semi buatan.

Kata kunci: *Barbonymus gonionotus*, *histologis testis, milt, pascamijah*

SUMMARY

Silver barb (*Barbonymus gonionotus* Bleeker, 1849) is one of Indonesia's native freshwater fish that has been widely cultivated. It is considered a potential superior commodity and is frequently consumed by the community. The aspect of reproduction is crucial for determining the success and sustainability of Silver barb aquaculture. The success of fertilization and seed production is highly influenced by various factors, including the maturity level of gonads and the use of high-quality gametes from male broodstock. Analysis of milt quality and histological observation of testicular tissues are strategies for assessing the reproductive competency of male Silver barb. This research aims to determine the milt quality, histological testicular profiles and spermatogenic stages of Silver barb during the 0, 1, 2, and 3-week post-spawning periods, and to determine the time range required for post-spawning male broodstock to recover their gonads. This information, particularly regarding male Silver barb, is rarely available and thus needs further investigation.

This research was conducted from July 2023 to January 2024 using observational methods. Data were collected from male Silver barb broodstock at weeks 0, 1, 2, and 3 post-spawning. For each week of data collection, 6 fish were randomly selected for milt quality evaluation, and 3 of them were sacrificed for histological preparations. Qualitative data including milt color and histological testicular profiles, were analyzed descriptively and presented as photomicrographs. Quantitative data including milt volume, spermatozoa density, and proportion of each spermatogenic stage, were analyzed using correlation and regression, milt pH was presented in the table, and spermatozoa motility percentage was analyzed subjectively.

The results showed that the milt volume, milt pH, and motility percentage evaluated at weeks 0, 1, 2, and 3 post-spawning were as follows, milt volume: 1,73 ± 0,77 ml, 0,77 ± 0,54 ml, 0,92 ± 0,55 ml, and 0,38 ± 0,21 ml; pH: 7,5 ± 0,55, 6,7 ± 0,52, 7,0 ± 0,00, and 7,0 ± 0,00 respectively; spermatozoa motility: 95 ± 5,48%, 93 ± 12,11%, 100 ± 0,00%, and 100 ± 0,00%. Milt color was milky to creamy white. The spermatozoa density at weeks 0, 1, 2, and 3 post-spawning were 2,16 ± 0,98 x 10^{11} cells/ml; 2,29 ± 0,85 x 10^{11} cells/ml; 3,17 ± 1,74 x 10^{11} cells/ml; and 4,38 ± 1,36 x 10^{11} cells/ml. Histological observations of the testes revealed that Silver barb have lobular-type testes, all stages of spermatogenic cells were observed and each stage was enclosed within cysts. The proportion of lobules at weeks 0, 1, 2, and 3 post-spawning in the spermatogonia stage tends to remain stable; primary spermatocytes, secondary spermatocytes, and spermatids were quite fluctuated; spermatozoa dominate and linearly increased until the third week post-spawning with the equation of y = 1,0142x + 4,5225 and coefficient of determination (R^2) = 0,3226. Based on the results, it can be concluded that the quality of milt of Silver barb at 0, 1, 2, and 3 weeks post-spawning was classified as good quality; histological assessment of the testes showed that all spermatogenic stages were observed, with a predominance of spermatozoa cells; and it is estimated that the Silver barb used in this study can be spawned again in the third week using semi-artificial spawning.

Keywords: *Barbonymus gonionotus*, *testicular histology, milt, post-spawning*