

Karakterisasi morfometrik dan molekuler parasit *Gyrodactylus* sp. pada ikan lele (*Clarias gariepinus*) = Morphometric and molecular characterization of *Gyrodactylus* sp parasites on african catfish (*Clarias gariepinus*)

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Abstrak

Penelitian karakterisasi morfometrik dan molekuler penting dilakukan untuk mengetahui keanekaragaman spesies *Gyrodactylus* sp. yang menginfeksi ikan lele (*Clarias gariepinus*). Hasil penelitian dapat digunakan untuk pengembangan metode deteksi serta pengendalian penyakit parasitik pada ikan air tawar lainnya. Penelitian bertujuan untuk mengidentifikasi karakter morfometrik dan molekuler parasit cacing *Gyrodactylus* sp. yang ditemukan pada ikan lele (*Clarias gariepinus*). Identifikasi *Gyrodactylus* dilakukan dengan analisis median hook dan daerah internal transcribed spacer (ITS) 1 and 2 pada DNA ribosom. Tahapan penelitian meliputi koleksi parasit, pengamatan secara mikroskopis, pengukuran karakter morfometrik, ekstraksi DNA, amplifikasi, visualisasi hasil PCR, sekuensing dan analisis data. Hasil analisis karakter morfometrik diperoleh data panjang tubuh sebesar $850,00 \pm 246,22$ (500-1150) m, lebar tubuh $116,36 \pm 19,30$ (80-155) m, panjang faring $52,50 \pm 3,54$ (50-55) m, lebar faring $48,75 \pm 1,77$ (47,5-50) m, panjang opisthaptor $56,98 \pm 8,24$ (44-75) m, lebar opisthaptor $115,12 \pm 18,17$ (90-150) m, panjang total jangkar $96,37 \pm 7,10$ (75-110) m, panjang ruas jangkar $50,29 \pm 5,72$ (40-62,5) m, panjang poros jangkar $55,15 \pm 6,69$ (37-70) m, panjang akar jangkar $43,80 \pm 6,16$ (32-55) m, jarak celah jangkar $31,15 \pm 6,91$ (24-50) m, panjang total kait tepi $30,00 \pm 3,10$ (26-35) m, panjang lengkung kait tepi $5,13 \pm 1,53$ (3,2-7,5) m dan panjang poros kait tepi $24,87 \pm 2,23$ (22,80-29) m. Analisis PCR sampel DNA *Gyrodactylus* sp. berhasil dilakukan berdasarkan munculnya pita DNA (band) pada kisaran ukuran 1.009 bp-1.014 bp. Hasil analisis filogenetik menunjukkan *Gyrodactylus* sp. memiliki kekerabatan terdekat dengan spesies *Gyrodactylus rysavyi* dengan homologi mencapai 99%. Berdasarkan karakterisasi morfometrik dan molekuler dapat disimpulkan bahwa *Gyrodactylus* sp. hasil penelitian merupakan spesies *Gyrodactylus rysavyi*.

.....Research on morphometric and molecular characterization important to determine the diversity of *Gyrodactylus* sp. infected on African catfish. The results of this research can be used to develop detection methods of other fish parasites diseases. The present study aimed to identify morphometric and molecular characteristic of the *Gyrodactylus* sp. parasite on African catfish (*Clarias gariepinus*). *Gyrodactylus* was identified using median hook morphology and by sequencing the nuclear ribosomal DNA internal transcribed spacer (ITS) 1 and 2. Methods of this study included of sampling, microscopic examination, morphometric measurement and analysis, DNA extraction, PCR amplification, visualization, sequencing, and data analyses. The morphometric analysis of *Gyrodactylus* specimens reported as body length $850,00 \pm 246,22$ (500-1150) m, body width $116,36 \pm 19,30$ (80-155) m, pharynx length $52,50 \pm 3,54$ (50-55) m, pharynx width $48,75 \pm 1,77$ (47,5-50) m, opisthaptor length $56,98 \pm 8,24$ (44-75) m, opisthaptor width $115,12 \pm 18,17$ (90-150) m, hamulus total length $96,37 \pm 7,10$ (75-110) m, hamulus point length $50,29 \pm 5,72$ (40-62,5) m, hamulus shaft length $55,15 \pm 6,69$ (37-70) m, hamulus root length $43,80 \pm 6,16$ (32-55) m, hamulus aperture distance $31,15 \pm 6,91$ (24-50) m, marginal hook total length $30,00 \pm 3,10$ (26-35) m, marginal hook sickle length $5,13 \pm 1,53$ (3,2-7,5) m and marginal hook shaft length $24,87 \pm 2,23$ (22,80-29)

m. PCR analysis showed an expected band of 1.009 bp-1.014 nucleotides in length on *Gyrodactylus* sp. DNA sample. Phylogenetic analysis showed *Gyrodactylus* sp. was closely related to *Gyrodactylus rysavyi* species with 99% similarity. Based on morphometric and molecular characterization, *Gyrodactylus* sp. specimens were described as *Gyrodactylus rysavyi*.