

Clinostomiasis adalah salah satu penyakit yang disebabkan oleh trematoda digenea *Clinostomum complanatum* atau lebih dikenal dengan “yellow grub”. Parasit ini bersifat zoonotik yang menyebabkan penyakit “laryngo-pharyngitis” dan dapat mengakibatkan kematian karena terjadi *Asphyxia* pada manusia. Infeksi *Clinostomum complanatum* pada ikan air tawar di Indonesia mengakibatkan kematian ikan dan kerugian ekonomi. Penelitian ini bertujuan untuk mengetahui perbedaan morfologi dan molekuler *Clinostomum complanatum* (Digenea: Clinostomidae) pada ikan air tawar di Riau dan Yogyakarta. Sampel ikan sepat (*Trichogaster trichopterus*) diperoleh dari sungai Sail, Riau, sedangkan ikan betok (*Anabas testudineus*) ditangkap di Kali Progo, Yogyakarta. Metaserkaria *Clinostomum* sp. yang ditemukan di rongga dada dan rongga perut, diambil dengan menggunakan jarum, diawetkan dalam formalin 10% dan etanol absolut. Pemeriksaan morfologi dengan pewarnaan *Semichon's acetocarmine*, *Scanning Electron Microscope* (SEM). Pemeriksaan molekuler dengan metode *Polymerase Chain Reaction* (PCR) yang terdiri dari ekstraksi, amplifikasi, PCR-RFLP, elektroforesis dan sekuensing. Data yang diperoleh dari hasil sekuensing dianalisis dengan metode *maximum parsimony* dan *neighbour-joining*. Jarak genetik dihitung menggunakan model parameter Kimura. Data yang diperoleh dari hasil PCR-RFLP dianalisis secara deskriptif. Hasil identifikasi morfologi dan *Scanning Electron Microscope* (SEM) diketahui bahwa metaserkaria *Clinostomum* sp. asal Riau merupakan spesies *Clinostomum* baru, sedangkan metaserkaria *Clinostomum* sp. asal Yogyakarta adalah *Clinostomum complanatum*. Hasil PCR rDNA metaserkaria *Clinostomum* sp. pada ITS region mengandung band yang jelas pada 1300 bp. Hasil PCR-RFLP dengan enzim restriksi *PstI* dan *AluI* menunjukkan restriksitas yang berbeda dari kelima *Clinostomum* sp, namun dengan enzim *RsaI* dan *HaeIII* tidak dapat mendigesti dengan baik. Penelitian menyimpulkan bahwa terdapat variasi intraspesifik antara metaserkaria *Clinostomum* sp. dari Riau dan Yogyakarta. Hasil analisis filogenetik diketahui metaserkaria *Clinostomum* sp. asal Yogyakarta identik secara molekuler dan satu klaster dengan metaserkaria *Clinostomum complanatum*. *Clinostomum* sp. asal Riau diduga spesies baru yang satu klaster dengan *Clinostomum phalacrocorasis* (perbedaan > 2%).

Kata kunci: *Clinostomum complanatum*, PCR, RFLP, Filogenetik, Riau, Yogyakarta

## ABSTRACT

Clinostomiasis is one of diseases caused by digenea trematoda *Clinostomum complanatum*, known well as "yellow grubs". This is a zoonotic parasite and causes the "laryngo-pharyngitis", and death caused by asphyxia in humans. *Clinostomum complanatum* infection of freshwater fish in Indonesia causes high fish mortality and economic losses. The objectives of research were a) to identify and to compare the morphological and molecular characteristics of *C. complanatum* (Digenea: Clinostomidae) infecting freshwater fishes in Riau and Yogyakarta, and b) to find out their strain variation. Climbing perch (*Trichogaster trichopterus*) infected by *Clinostomum* sp. were caught from Sail River of Riau, while climbing gouramy (*Anabas testudineus*) caught from Kali Progo, Yogyakarta. Excysted *Clinostomum* sp. was found in the body cavity and visceral organ, were aseptically taken using needle, preserved in 10% formalin and absolute ethanol solution. Morphological examination was done with *Semichon's acetocarmine* staining, *Scanning Electron Microscope* (SEM). Molecular examination performed by Polymerase Chain Reaction (PCR) method consisting of extraction, amplification in the ITS region, PCR-RFLP, electrophoresis and sequencing. Data obtained from sequencing results were analysed by maximum parsimony and neighbour-joining method. Genetic distances were calculated using Kimura parameter model. Based on morphological observation and Scanning Electron Microscope (SEM) the worm from Riau was categorized as a new species, whereas worm from Yogyakarta was identified as *Clinostomum complanatum*. The PCR rDNA product of *Clinostomum* sp. at ITS region had a clear band of 1300 bp. Product of RFLP using *Pst*I and *Alu*I restriction enzyme showed different site among the five worms, however, the *Rsa*I and *Hae*III enzyme could not digest well. There was intraspecific variation in *Clinostomum* sp. metacercariae in Riau and Yogyakarta. Phylogenetic analysis showed that *Clinostomum* sp. from Yogyakarta identic to *Clinostomum complanatum*, whereas *Clinostomum* sp. from Riau were suspected as a new species (difference > 2%) which is included in one cluster with *Clinostomum phalacrocorasis*.

Key words: *Clinostomum complanatum*, PCR, RFLP, Phylogenetic, Riau, Yogyakarta.