

STUDI TAKSONOMI KATAK PERCIL JAWA *Microhyla achatina* TSCHUDI,  
1838 GRUP JAWA DAN SUMATRA DENGAN GEN 12S DAN 16S rRNA  
MITOKONDRIA, SERTA KARAKTER MORFOLOGIS

Vestidhia Yunisya Atmaja  
16/401983/PBI/01432

INTISARI

Indonesia merupakan salah satu negara *biodiversity hotspot* dengan tingkat endemisitas spesies yang tinggi. Salah satu spesies endemik dari Kelas Amphibia yaitu *Microhyla achatina* yang terdistribusi di Pulau Sumatra, Jawa dan Bali. Namun berdasarkan penelitian terkini, diduga *M. achatina* di luar Pulau Jawa terindikasi berbeda spesies (berdasarkan gen 12S dan 16S rRNA mitokondria). Berdasarkan permasalahan tersebut perlu adanya penelitian lebih lanjut mengenai kedudukan taksonomi *M. achatina*. Penelitian ini bertujuan untuk mengkaji sistematik dan filogenetik *M. achatina* grup Jawa dan Sumatra berdasarkan analisis molekular dan morfologi. Penelitian dilaksanakan menjadi 2 tahapan: analisis molekular (*M. achatina* Jawa dan Sumatra (9 sekuen) dan data *GenBank* (20 sekuen)) dan morfologi (*M. achatina* (65 sampel) dan *Microhyla* spp. dari Sumatra (103 sampel)) di Laboratorium Genetika Hewan dan Herpetologi, *Museum Zoologicum Bogoriense*, LIPI pada bulan Agustus – Desember 2017. Isolasi DNA dilakukan menggunakan metode fenol–kloroform dan *sequencing* menggunakan primer H3056 dan L2606. Pohon filogenetik direkonstruksi berdasarkan *Bayesian Inference* (BI), *Maximum Likelihood* (ML) dan *Neighbor Joining* (NJ). Pendataan Morfologi katak menggunakan 52 karakter. Data morfologi dianalisis menggunakan analisis PCA (*Principal Component Analysis*) dan *T-test Independent Analysis*. Hasil penelitian ini menunjukkan bahwa *M. achatina* Sumatra dan Jawa merupakan spesies yang berbeda. Berdasarkan data molekular diperoleh yaitu kedua kelompok membentuk clade yang terpisah (sister taxa) dengan bootstrap NJ/ML/BI:100/99/100 pada pohon filogenetik dan jarak genetik > 3% (4,8 – 6,3%). Terdapat 3 karakter pembeda kedua kelompok berdasarkan analisis morfologi yaitu: N–EL, N–EL/SL, dan CTF.

Kata kunci: spesies kriptik, mitokondria DNA, filogenetik, karakter diagnostik

TAXONOMY STUDIES OF JAVANESE  
NARROW-MOUTHED FROG *Microhyla achatina* TSCHUDI, 1838 JAVA AND  
SUMATRA GROUP BASED ON 12S AND 16S rRNA MITOCHONDRIAL GENE,  
AND MORPHOLOGICAL CHARACTERS

Vestidhia Yunisya Atmaja  
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ABSTRACT

Indonesia is one of biodiversity hotspot with its high endemicity. One of the endemic species from Class Amphibia is *Microhyla achatina* which is distributed on Sumatra, Java, and Bali Island. Recent study of this species revealed that *M. achatina* outside of Java population is referred as another species based on their genetic distance of 12S and 16S rRNA mitochondria gene. Further research of *M. achatina* taxonomy status is needed. The aim of this research is to review the systematic and phylogenetic of *M. achatina* group of Java and Sumatra based on molecular and morphology analysis. The research was conducted in 2 stages: molecular analysis (*M. achatina* Java and Sumatra (9 sequences) and GenBank data (20 sequences)) and morphological analysis (*M. achatina* group (65 sample) and *Microhyla* spp. from Sumatra (103 samples)) at Animal Genetics and Herpetology Laboratory of *Museum Zoologicum Bogoriense*, LIPI from August–December 2017. DNA was isolated with phenol–chloroform method and sequencing using H3056 and L2606 primers. Phylogenetic trees were reconstructed using Bayesian Inference (BI), Maximum Likelihood (ML) and Neighbor Joining (NJ). The observation on morphological characters covered of 52 characters. The morphological data was analyzed using PCA (Principal Component Analysis) and T-test Independent Analysis. The results showed that *M. achatina* Sumatra as separated species from *M. achatina* Java. Based on molecular analysis we obtained the two groups formed a separate clade (sister taxa) with bootstrap NJ/ML/BI: 100/99/100 on phylogenetic tree and genetic distance > 3% (4.8 - 6.3%). There are 3 diagnostic characters of both groups based on morphological analysis: N-EL, N-EL/SL, and CTF.

Keywords: cryptic species, mtDNA, phylogenetics, diagnostic character