# Deteksi Kura-kura Brazil (Trachemys scripta elegans) pada Enam Situ di Wilayah Universitas Indonesia, Depok, Jawa Barat, Menggunakan eDNA, Analisis qPCR, dan Marka Cytochrome-c Oxidase Subunit I (COI) = Detection of Red-eared Slider in Six Ponds at the Universitas Indonesia, Depok, West Java, Using eDNA, qPCR Analysis, and Cytochrome-c Oxidase Subunit I (COI) Marker

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Abstrak

Kura-kura brazil (Trachemys scripta elegans) merupakan salah satu spesies invasif perairan tawar. Keberadaan spesies tersebut membawa dampak buruk bagi ekosistem sehingga perlu dieradiksi dengan cara pendeteksian dini. Pendeteksian dini suatu spesies akuatik dapat dilakukan menggunakan pendekatan molekular yang efektif dan non-invasif, yaitu metode environmental DNA dan quantitative PCR. Penelitian dilakukan untuk mendeteksi keberadaan kura-kura brazil di enam situ di Universitas Indonesia, Depok, Indonesia. Metode yang digunakan dalam peneitian ini adalah isolasi dengan PCI, amplifikasi dengan qPCR secara triplikat menggunakan primer COI dari gen mitokondria. Berdasarkan pengujian limit of detection (LOD) dan limit of quantification (LOQ) yang ditentukan dari kurva standar memiliki LOD sebesar 220.164 salinan DNA/reaksi dan LOQ sebesar 667.163 salinan DNA/reaksi. Keberadaan kura-kura brazil terdeteksi di lima situ pada tahun 2021 dan enam situ pada tahun 2022. Tidak ditemukan pengaruh faktor lingkungan terhadap keberadaan kura-kura brazil yang ditentukan berdasarkan ANOVA Satu Arah dengan nilai p > 0,05. Keberadaan Kura-kura brazil di Universitas Indonesia dapat dideteksi menggunakan eDNA dan digunakan sebagai kegiatan pemantauan dan eradikasi spesies asing invasif di ekosistem perairan urban. .....Red-eared slider (Trachemys scripta elegans) is one of the most invasive freshwater species. The existence of this species affects their non-native ecosystem in a negative manner, that ideally it should be eradicated by conducting an early detection of the ecosystem. Early detection of an aquatic species can be done by using the environmental DNA and quantitative PCR methods, as both use effective molecular and non-invasive approach. This study was conducted to detect the presence of red-eared slider within the ecosystem of 6 ponds located at Universitas Indonesia, Depok, Indonesia. The methods that are used in the study covered isolation with PCI, amplification with qPCR in triplicate using primer COI from the mitochondria gen. Limit of detection (LOD) and limit of quantification (LOQ) were then examined by referring to the standard curve, LOD held the value of 220,164 of DNA copies/reaction, while LOQ held the value of 667,163 of DNA copies/reaction. The presence of red-eared slider was then proven in the ponds within the ecosystem; 5 in 2021 and 6 in 2022. The influence between the presence of red-eared slider and pH was not found, the conclusion is backed with calculation using One Way ANOVA using p-value > 0,05. The presence of red-eared slider in Universitas Indonesia can be detected using eDNA, which later can be utilized as a tool to observe and eradicate the foreign species within the urban water ecosystem