

ABSTRAK

VALIDASI SPESIES MANGROVE *Rhizophora* Spp. DI DUSUN KALANGAN BERDASARKAN CIRI MORFOLOGI DAN DNA BARCODING

Oleh

AFIFAH HUMAIROH

Ekosistem mangrove memiliki peran penting dalam menjaga stabilitas pesisir, menyimpan karbon, serta menyediakan habitat bagi berbagai biota. Namun, tekanan akibat alih fungsi lahan dan aktivitas wisata menyebabkan penurunan luas dan kualitas hutan mangrove, termasuk di Dusun Kalangan, Desa Pahawang, Lampung. Upaya konservasi memerlukan identifikasi spesies yang akurat sebagai dasar perencanaan rehabilitasi. Penelitian ini bertujuan untuk mengidentifikasi spesies *Rhizophora* melalui pendekatan morfologi dan *DNA barcoding*, serta menentukan marker DNA yang paling efektif dalam membedakan spesies. Karakter morfologi yang diamati meliputi panjang lamina, lebar daun, panjang tangkai, serta bentuk ujung dan pangkal daun. Hasil pengamatan menunjukkan kesesuaian parameter morfologi dengan data literatur untuk *R. apiculata*, *R. mucronata*, dan *R. stylosa*. Pendekatan molekuler dilakukan menggunakan tiga marker: ITS, *rbcL*, dan *psbA-trnH*. Hasil PCR menunjukkan bahwa marker ITS dan *psbA-trnH* berhasil diamplifikasi pada seluruh sampel, sedangkan *rbcL* gagal pada *R. apiculata*. Analisis BLAST dan konstruksi pohon filogenetik dengan metode neighbor joining (NJ) menunjukkan bahwa ITS memiliki tingkat identitas tertinggi (hingga 100%) dan menghasilkan pemisahan spesies yang lebih jelas dibandingkan marker lainnya. Oleh karena itu, marker ITS dinilai paling efektif dalam identifikasi spesies *Rhizophora*. Gabungan metode morfologi dan *DNA barcoding* terbukti meningkatkan akurasi identifikasi dan menjadi pendekatan yang relevan dalam mendukung pengelolaan serta konservasi ekosistem mangrove di wilayah pesisir.

Kata kunci : Bakau, ITS, *rbcL*, *psbA trnH*

ABSTRACT

VALIDATION OF *Rhizophora* Spp. MANGROVE SPECIES IN KALANGAN VILLAGE BASED ON CIRI MORFOLOGY AND DNA BARCODING

By

AFIFAH HUMAIROH

Mangrove ecosystems play an important role in maintaining coastal stability, storing carbon, and providing habitats for various biota. However, pressure from land use change and tourism activities has led to a decline in the area and quality of mangrove forests, including in Kalangan, Pahawang Village, Lampung. Conservation efforts require accurate species identification as a basis for rehabilitation planning. This study aims to identify *Rhizophora* species using morphological and *DNA barcoding* approaches, as well as to determine the most effective DNA markers for distinguishing species. The morphological characteristics observed include leaf blade length, leaf width, petiole length, and the shape of the leaf tip and base. The results of the observations showed that the morphological parameters were consistent with literature data for *R. apiculata*, *R. mucronata*, and *R. stylosa*. The molecular approach used three markers: ITS, *rbcL*, and *psbA-trnH*. PCR results showed that the ITS and *psbA-trnH* markers were successfully amplified in all samples, while *rbcL* failed in *R. apiculata*. BLAST analysis and phylogenetic tree construction using the neighbor joining (NJ) method showed that ITS had the highest identity level (up to 100%) and produced clearer species separation compared to other markers. Therefore, the ITS marker was considered the most effective for *Rhizophora* species identification. The combination of morphological and DNA barcoding proved to improve identification accuracy and became a relevant approach in supporting the management and conservation of mangrove ecosystems in coastal areas.

Keywords : Mangrove, ITS, *rbcL*, *psbA trnH*