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Evaluasi Genotipe Padi Lokal Jambi Tahan Naungan Berdasarkan Karakter Morfofisiologis
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INTISARI

Padi (*Oryza sativa* L.) merupakan komoditas pangan strategis, namun penyempitan lahan sawah mendorong pemanfaatan sistem agroforestri padi-karet dan padi-sawit yang menimbulkan cekaman naungan. Penelitian ini bertujuan mengevaluasi respons morfofisiologis, menganalisis karakter penentu hasil, dan mengonfirmasi fragmen gen kandidat ketahanan naungan, serta klasifikasi genotipe padi lokal Jambi, yang tahan naungan. Penelitian ini menggunakan Rancangan Acala Kelompok Lengkap (RAKL) faktorial dengan 14 genotipe (11 lokal Jambi dan3 varietas pembanding) dan 4 tingkat naungan (N1-N4), diulang 5 kali (280 unit percobaan). Data dianalisis menggunakan ANOVA, analisis jalur (Dewey & Lu, 1959), tujuh indeks toleransi cekaman, PCA, dan deteksi enam fragmen gen kandidat (CP24, MFT1, PHYB, SP1, EREBP-2, OsPIL14) melalui PCR. Hasil menunjukkan interaksi genotipe x naungan nyata pada sebagian besar karakter yang diamati, termasuk jumlah anakan produktif, luas daun, kandungan klorofil, dan kerapatan stomata. Gabah bernas dan bobot 1000 butir merupakan karakter berpengaruh langsung terbesar terhadap hasil gabah di bawah naungan. Keenam fragmen gen kandidat berhasil ter amplifikasi pada seluruh genotipe namun bersifat monomorfik sehingga tidak membedakan tingkat toleransi. Naungan N2 (54% cahaya) paling efektif membedakan potensi hasil tinggi dan rendah, sedangkan N1 (36% cahaya) paling representatif untuk seleksi ketahanan naungan. Empat genotipe (V1/Kumpai, V2/Tanjung, V4/Lanjung, V6/Rejang) diklasifikasikan tahan naungan. Temuan ini memberikan dasar seleksi awal bagi program pemuliaan padi adaptif naungan berbasis plasma nutfah lokal Jambi.

Kata kunci: Padi lokal Jambi, cekaman naungan, karakter morfofisiologis, seleksi genotipe

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ABSTRACT

Rice (*Oryza sativa* L.) is a strategic food commodity, but shrinking paddy ;and has driven the adoption of rubber-and oil palm,- base rice agroforestry systems that expose plants to shade stress. This study aimed to evaluate the morphophysiological responses, identify the characters most determining yield, confirm shade-tolerance candidat genes fragments, and clasify shade-tolerant genotypes among local Jambi rice. A factorial Randomized Complete Block Design (RCBD) was used, involving 14 genotypes (11 local Jambi accessions and 3 check varieties) and 4 shading levels (N1-N4), replicated fives times (280 experimental units). Data were analyzed using ANOVA, path analysis (Dewey & Lu, 1959), seven stress tolerance indices, pricipal component analysis (PCA), and PCR-based detection of six candidate genes fragments (CP24, MFT1, PHYB, SP1, EREBP-2, OsPIL14). Results revealed significant genotypes x shading interactions for most observed traits, including productivr tiller number, leaf arean, chlorophyll content, and stomatal density. Filled grain number and 1000-grain weight showed the largest direct effects on grain yiled under shading. All six candidate gene fragments were succesfully amplified across genotypes, but the monomophic amplification pattern could not distinguish tolerance levels among genotypes. Shading level N2 (54% light) was the most effective condition for discriminating high and low yielding genotypes, while N1 (36% light) was the most representative for general shade-tolerance selection. Based on stress tolerance indices, PCA, yield components, and cross-shading stability, four genotypes (V1/Kumpai, V2/Tanjung, V4/Lanjung, V6/Rejang) were classified as shade-tolerant. These findings provide a basis for preliminary selection in shade-adaptive rice breeding programa utilizing local Jambi germplasm.

Keywords: *Jambi local rice, shade stress, morphophisiological characters, genotype selection.*