

PERTUMBUHAN, HASIL PANEN, DAN IDENTIFIKASI FISIOMORFOLOGI GALUR-GALUR PADI HITAM HASIL PERSILANGAN (CEMPO IRENG X SITU BAGENDIT)

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INTISARI

Padi hitam (*Oryza sativa* L. var. Cempo Ireng) merupakan varietas lokal yang memiliki kandungan antosianin tinggi dan manfaat fungsional sebagai antioksidan. Namun, karakter agronomis seperti umur panen panjang, tinggi tanaman yang berisiko rebah, serta hasil panen rendah menyebabkan varietas ini kurang diminati petani. Untuk mengatasi permasalahan tersebut, dilakukan persilangan antara Cempo Ireng dengan varietas unggul Situ Bagendit yang memiliki postur lebih pendek, umur panen lebih singkat, dan produktivitas tinggi. Penelitian ini bertujuan untuk menganalisis pertumbuhan, produktivitas, serta karakter fisiologis dan morfologi galur padi hitam generasi ke-7 hasil persilangan Cempo Ireng $\times$ Situ Bagendit. Penelitian dilaksanakan di lahan persawahan Sleman dan Laboratorium Fisiologi Tumbuhan Fakultas Biologi UGM menggunakan dua tetua dan tujuh galur hasil persilangan. Parameter yang diamati meliputi pertumbuhan tanaman, komponen hasil, produktivitas, warna bulir, warna gabah, warna daun, bentuk malai, kandungan klorofil, karotenoid, konduktansi stomata, laju transpirasi, serta analisis kekerabatan menggunakan dendrogram. Data kuantitatif dianalisis menggunakan ANOVA dan DMRT taraf 5% sedangkan data kualitatif dianalisis secara deskriptif. Hasil penelitian menunjukkan bahwa galur hasil persilangan memiliki variasi karakter yang luas dengan beberapa galur menunjukkan performa lebih baik dibandingkan tetua. Beberapa galur memiliki tinggi tanaman lebih pendek dari Cempo Ireng namun tetap produktif, jumlah anakan produktif lebih tinggi, panjang malai lebih besar, serta jumlah gabah isi lebih banyak. Karakter fisiologis seperti kandungan klorofil, karotenoid, konduktansi stomata, dan laju transpirasi menunjukkan variasi antar galur yang mendukung aktivitas fotosintesis dan pembentukan hasil.

KATA KUNCI: Cempo Ireng, fisiomorfologi, produktivitas, Situ Bagendit

GROWTH, YIELD, AND PHYSIOMORPHOLOGICAL IDENTIFICATION OF CROSSED BLACK RICE LINES (CEMPO IRENG X SITU BAGENDIT)

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ABSTRACT

Black rice (*Oryza sativa* L. var. Cempo Ireng) is a local variety with high anthocyanin content and functional benefits as an antioxidant. However, agronomic characteristics such as long harvest period, plant height at risk of lodging, and low yields make this variety less attractive to farmers. To overcome these problems, a cross between Cempo Ireng and the superior variety Situ Bagendit was carried out which has a shorter stature, shorter harvest period, and high productivity. This study aims to analyze the growth, productivity, as well as the physiological and morphological characteristics of the 7th generation black rice lines resulting from the Cempo Ireng $\times$ Situ Bagendit cross. The study was conducted in Sleman rice fields and the Plant Physiology Laboratory of the Faculty of Biology, Gadjah Mada University using two parents and seven crossed lines. The parameters observed included plant growth, yield components, productivity, grain color, grain color, leaf color, panicle shape, chlorophyll content, carotenoids, stomatal conductance, transpiration rate, and kinship analysis using a dendrogram. Quantitative data were analyzed using ANOVA and DMRT at 5% level, while qualitative data were analyzed descriptively. The results showed that the crossbred lines had a wide variation in characters, with some lines showing better performance than their parents. Some lines had shorter plant heights than Cempo Ireng but remained productive, had a higher number of productive tillers, a larger panicle length, and a higher number of filled grains. Physiological characters such as chlorophyll content, carotenoids, stomatal conductance, and transpiration rate showed variations between lines that support photosynthetic activity and yield formation.

KEYWORDS: Cempo Ireng, physiomorphology, productivity, Situ Bagendit