

**APLIKASI IRADIASI SINAR GAMMA UNTUK PERBAIKAN UMUR  
PANEN DAN TINGGI TANAMAN PADI HITAM VARIETAS JELITENG  
DAN VARIETAS CEMPO IRENG**

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**ABSTRAK**

Padi hitam (*Oryza sativa* L. indica) merupakan salah satu tanaman pangan dengan banyak manfaat seperti antosianin dan flavonoid. Kendala budidaya terkait padi hitam yang berumur panen lama serta batang tinggi mudah rebah menjadi salah satu hambatan dalam produksi padi hitam. Iradiasi sinar merupakan salah satu metode pemuliaan yang dirasa efektif untuk memperbaiki sifat tersebut. Penelitian bertujuan untuk mendapatkan LD50, pertumbuhan, dan hasil varietas padi hitam dengan iradiasi sinar gamma. Metode penelitian menggunakan Rancangan Acak Lengkap (RAL) dua faktor tiga ulangan. Faktor I varietas dengan dua aras, yaitu Jeliteng dan Cempo Ireng. Faktor II yakni dosis iradiasi dengan lima aras, yaitu 0, 100, 200, 300 dan 400 Gy. Data hasil pengamatan kemudian dianalisis menggunakan DMRT dan Polinomial Ortogonal 5%. Hasil penelitian menunjukkan dosis 305,06 Gy menyebabkan kematian 50% pada populasi (LD50) Varietas Jeliteng dan dosis 308,05 Gy menyebabkan kematian 50% pada populasi (LD50) Varietas Cempo Ireng. Interaksi antara Varietas Cempo Ireng dan dosis iradiasi 0 Gy meningkatkan pertumbuhan dan hasil. Dosis optimum 292,75 Gy mempercepat umur panen Varietas Jeliteng. Dosis optimum 366,5 Gy mempercepat umur panen Varietas Cempo Ireng. Varietas Jeliteng memberikan tinggi tanaman terendah umur 28 dan 42 HST. Dosis iradiasi 400 Gy menurunkan tinggi tanaman 28 dan 42 HST.

**Kata Kunci:** Varietas, Iradiasi, Padi Hitam

**APPLICATION OF GAMMA RAY IRRADIATION TO IMPROVE  
HARVEST TIME AND PLANT HEIGHT OF BLACK RICE VARIETIES  
JELITENG AND CEMPO IRENG**

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**ABSTRACT**

Black rice (*Oryza sativa* L. indica) is a food crop with various health benefits due to its high anthocyanin and flavonoid contents. However, the cultivation of black rice is constrained by its long maturity period and tall plant stature, which increases susceptibility to lodging and limits production. Gamma ray irradiation is considered an effective plant breeding method to improve these traits. This study aimed to determine the lethal dose 50% (LD50), as well as to evaluate the growth and yield of black rice varieties subjected to gamma ray irradiation. The experiment was conducted using a completely randomized design (CRD) with two factors and three replications. The first factor was variety, consisting of Jeliteng and Cempo Ireng, while the second factor was gamma irradiation dose, comprising five levels: 0, 100, 200, 300, and 400 Gy. Observational data were analyzed using DMRT and orthogonal polynomial analysis at 5% level. The results showed that a dose of 305.06 Gy caused 50% mortality (LD50) in the Jeliteng variety, while a dose of 308.05 Gy resulted in 50% mortality (LD50) in the Cempo Ireng variety.. A significant interaction was observed between variety and irradiation dose treatments. The optimum dose of 292.75 Gy accelerated harvest maturity in the Jeliteng variety. The optimum dose of 366.5 Gy accelerated harvest maturity in the Cempo Ireng variety. The Jeliteng variety reduced plant height at 28 and 42 DAT. In addition, a gamma irradiation dose of 400 Gy effectively reduced plant height at 28 and 42 DAT.

Keywords: Variety, Irradiation, Black Rice