

**PENGARUH PERBEDAAN PENYINARAN RADIASI SINAR GAMMA  
TERHADAP PERTUMBUHAN DAN PRODUKTIVITAS  
TANAMAN SORGUM BROWN MIDRIB (BMR)**

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**INTISARI**

Penelitian ini bertujuan untuk mengetahui pengaruh radiasi sinar gamma terhadap pertumbuhan dan produktivitas rumput sorgum BMR. Biji sorgum BMR diradiasi dengan sinar gamma dengan dosis 100 Gy, 200 Gy, 300 Gy, dan 400 Gy. Biji digerminasikan selama 2 minggu. Pemeliharaan dan pengamatan dilakukan selama 80 hari. Data yang diamati adalah panjang rumput, tinggi rumput, lebar daun, panjang daun, diameter batang, umur berbunga, berat biji, dan produktivitas (produksi bahan kering dan bahan organik). Data pertumbuhan dan produktivitas dianalisis menggunakan Analisis Pola Searah, kemudian dilanjutkan dengan uji *Duncan's Multiple Range Test* jika terdapat perbedaan nyata pada perlakuan. Hasil penelitian menunjukkan bahwa perlakuan hasil radiasi sinar gamma berpengaruh nyata ( $P < 0,05$ ) terhadap umur berbunga, produksi bahan kering dan bahan organik. Dosis 300 Gy menghasilkan umur berbunga (60,10 hari), produksi bahan kering (0,69 ton/ha) dan produksi bahan organik (0,58 ton/ha) menghasilkan nilai tertinggi dibandingkan dengan perlakuan lain. Kesimpulan yang dapat diambil adalah radiasi sinar gamma berpengaruh terhadap umur berbunga, produksi bahan kering dan produksi bahan organik sorgum BMR. Dosis 300 Gy merupakan dosis optimum untuk radiasi sinar gamma sorgum BMR.

**Kata kunci:** (Sorgum BMR, radiasi, sinar gamma, pertumbuhan, dan produktivitas tanaman).

## THE EFFECT OF GAMMA RADIATION ON GROWTH AND PRODUCTIVITY OF SORGUM BROWN MIDRIB (BMR) PLANT

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### **ABSTRACT**

The aim of this study was to evaluate the effect of gamma radiation on growth and productivity of sorghum BMR. The doses of radiation were 100 Gy, 200 Gy, 300 Gy, and 400 Gy. Seeds were germinated for 2 weeks after radiation. Rearing and observation has been conducted after 80 days after planting. The observed data were growth (length grass, height of grass, width leaves, length leaves, stem diameter, inflorescence, seeds, and productivity (production dry matter and organic matter). Growth and productivity data were analyzed using Complete Random Design followed by Duncan's Multiple Range Test if there were significantly different among the treatment. The results showed that radiation treatment had significant effect ( $P < 0,05$ ) on growth plant (inflorescence) and productivity (production dry matter and organic matter). The 300 Gy radiation resulted produce inflorescence (60,10 day), productivity of dry matter (0,69 tons/ha) productivity of organic matter (0,58 tons/ha) were the highest then other treatments. The conclusion of this study was 300 Gy gamma radiation affected was the best doses for radiation sorghum BMR to get different growth (inflorescence) and productivity (dry matter and organic matter).

**Key words:** (Sorghum BMR, irradiation, gamma rays, growth, and productivity plant)