PENGARUH PENYINARAN RADIASI SINAR GAMMA TERHADAP MORFOLOGI DAN PRODUKSI BIOMASSA RUMPUT RHODES (*Chloris gayana* cv. Callide*)* PADA *REGROWTH* PERTAMA

Hanifah Nur Rohmah
18/424561/PT/07613

INTISARI

Tujuan dari penelitian ini yaitu untuk mengetahui pengaruh radiasi sinar gamma terhadap morfologi dan produksi biomassa *Chloris gayana* cv. Callide. Penelitian dilakukan terhadap tanaman *Chloris gayana* cv. Callide yang telah diradiasi sinar gamma pada bagian bijinya. Perlakuan radiasi sinar gamma pada *Chloris gayana* cv. Callide terdiri dari kontrol (P0), radiasi 100 Gy (P100), 200 Gy (P200), dan 300 Gy (P300). Setiap perlakuan diberikan delapan pengulangan. Pemeliharaan dilakukan selama 150 hari setelah tanam pada *regrowth* pertama. Data yang diamati adalah morfologi (panjang tanaman, tinggi tanaman, panjang daun, lebar daun, jumlah daun, dan jumlah buku) dan produksi biomassa (produksi segar, produksi bahan kering, produksi bahan organik, dan kandugan bahan kering dan bahan organik). Data yang diperoleh dianalisis statistik menggunakan analisis variansi menurut rancangan acak lengkap pola searah dan dilanjutkan dengan perhitungan *Duncan's new Multiple Range Test* (DMRT) untuk data yang berbeda nyata. Hasil penelitian menunjukan bahwa pemberian dosis radiasi 100 Gy secara signifikan menunjukan hasil yang lebih tinggi ($P<0,05$) terhadap morfologi dan produksi biomassa. Tidak terdapat perbedaan nyata ($P>0,05$) antara bahan kering dan bahan organik dari masing-masing dosis radiasi dan kontrol. Kesimpulan yang dapat diambil yaitu pemberian dosis radiasi berpengaruh terhadap morfologi dan produksi biomassa tanaman. Radiasi 100 Gy mampu meningkatkan panjang tanaman, tinggi tanaman, panjang daun, lebar daun, jumlah buku dan produksi biomassa. Perlakuan dosis radiasi 200 dan 300 Gy mampu menurunkan morfologi dan produksi biomassa *Chloris gayana* cv. Callide. Radiasi sinar gamma tidak memberikan pengaruh pada kadar bahan kering dan bahan organik tanaman.

Kata kunci: *Chloris gayana* cv. Callide*,* Morfologi, Produksi biomassa, Radiasi sinar gamma, *Regrowth*

THE EFFECT OF GAMMA RADIATION ON THE MORPHOLOGY AND PRODUCTION OF BIOMASS RHODES GRASS (*Chloris gayana* cv. Callide*)* ON THE FIRST REGROWTH

Hanifah Nur Rohmah
18/424561/PT/07613

ABSTRACT

The purpose of this study was to determine the effect of gamma radiation on morphology and biomass production of Chloris gayana cv. Callide. The research was conducted on Chloris gayana cv. Callide that had been irradiated with gamma rays on the seeds. Gamma radiation treatment on Chloris gayana cv. Callide consisted of control (P0), 100 Gy radiation (P100), 200 Gy (P200), and 300 Gy (P300). Each treatment was given eight repetitions. Maintenance was carried out for 150 days after planting at the first regrowth. Data observed were morphology (plant length, plant height, leaf length, leaf width, number of leaves, and number of books) and biomass production (fresh production, dry matter production, organic matter production, and dry matter and organic matter content). The data obtained were analyzed statistically using analysis of variance according to a complete randomized design in a unidirectional pattern and continued with Duncan's new Multiple Range Test (DMRT) calculation for significantly different data. The results showed that the radiation dose of 100 Gy significantly showed higher results ($P<0.05$) on morphology and biomass production. There was no significant difference ($P>0.05$) between dry matter and organic matter from each radiation dose and control. The conclusion that can be drawn is that radiation doses affect the morphology and biomass production of plants. Radiation of 100 Gy can increase plant length, plant height, leaf length, leaf width, number of books and biomass production. Radiation dose treatment of 200 and 300 Gy can reduce the morphology and biomass production of Chloris gayana cv. Callide. Gamma radiation does not affect the levels of dry matter and plant organic matter.

Keywords: *Chloris gayana* cv. Callide, Morphology, Biomass production, Gamma radiation, *Regrowth*