

KERAGAMAN GENETIK, PRODUKSI BIOMASSA, DAN KANDUNGAN
NUTRIEN RUMPUT RHODES (*Chloris gayana* cv. *Callide*)
DENGAN PERENDAMAN KOLKISIN PADA
REGROWTH KEDUA DAN KETIGA

INTISARI

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Penelitian ini bertujuan untuk mengetahui pengaruh lama perendaman biji rumput rhodes pada larutan kolkisin 0,1% dan faktor *regrowth* terhadap keragaman genetik, produksi biomassa, dan kandungan nutrisi. Penelitian ini menggunakan Rancangan Acak Lengkap pola faktorial 4x2. Faktor pertama yakni lama perendaman (0, 2, 4, dan 6 jam) dan faktor kedua yakni fase *regrowth* (*Regrowth* 2 dan 3). Setiap level perlakuan terdapat 10 ulangan sehingga terdapat 40 satuan percobaan. Parameter yang diamati meliputi produksi biomassa, kandungan nutrisi (bahan kering, bahan organik, serat kasar, lemak kasar, protein kasar), ukuran stomata, kandungan klorofil serta keragaman pada genetik tanaman. Data penelitian dianalisis menggunakan *Analysis of variance* (ANOVA), stomata daun dianalisis secara deskriptif, dan hasil keragaman genetik dianalisis menggunakan NTSYS (*Numerical Taxonomy and Multivariate System*). Hasil penelitian menunjukkan bahwa perendaman kolkisin (2, 4, dan 6 jam) dan *regrowth* berpengaruh nyata ($P < 0,05$) terhadap produksi biomassa, kandungan nutrisi (bahan kering, bahan organik, lemak kasar, protein kasar dan serat kasar) serta kadar klorofil daun. Faktor *regrowth* memberikan pengaruh tidak signifikan ($P < 0,05$) terhadap kadar serat kasar pada tanaman. Kedua faktor perlakuan memiliki interaksi signifikan ($P < 0,05$) terhadap kandungan protein kasar. Perlakuan lama perendaman dengan kolkisin 0,1% dapat membentuk keragaman genetik pada rumput rhodes dengan primer yang berbeda ditandai dengan adanya pita polimorfik. Perendaman selama 6 jam dengan kolkisin 0,1% meningkatkan ukuran pada stomata daun. Kesimpulan dari penelitian ini yaitu perbedaan lama perendaman kolkisin dan *regrowth* meningkatkan produksi biomassa, kandungan nutrisi, dan karakteristik sitologi pada rumput rhodes. Interaksi keduanya akan berpengaruh pada kandungan protein kasar.

Kata Kunci: *Chloris gayana* cv. *Callide*, *Colchicine*, RAPD, *Regrowth*, Stomata

GENETIC DIVERSITY, BIOMASS PRODUCTION, AND NUTRIEN CONTENT
OF RHODES GRASS (*Chloris gayana* cv. *Callide*) BY *COLCHICINE*
TREATMENT IN SECOND AND THIRD *REGROWTH*

ABSTRACT

This research aims to determine the effect of soaking rhodes grass seeds in 0,1% *colchicine* and different *regrowth* phase on genetic diversity, biomass production and nutrient content. This research used a completely randomized design with two factors. The first factor is soaking time (0, 2, 4 and 6 hours) and the second factor is *regrowth* phase. Each treatment level had 10 replications so there were 40 experimental units. The parameters observed include biomass production, nutrient content (dry matter, organic matter, crude fiber, crude fat, crude protein), stomata size, chlorophyll content and genetic diversity. Data result were analyzed using Analysis of variance (ANOVA), leaf stomata were analyzed descriptively, and genetic diversity results were analyzed using NTSYS (Numerical Taxonomy and Multivariate System). The results showed that soaked with *colchicine* 0,1% (2, 4 and 6 hours) and *regrowth* phase had a significant effect ($P < 0.05$) on biomass production, nutrient content (dry matter, organic matter, crude fat, crude protein and crude fiber) and levels leaf chlorophyll. *Regrowth* factor had no significant influence ($P < 0.05$) on crude fiber content in plants. Two treatment factors had a significant interaction ($P < 0.05$) on crude protein content. Soaking treatment with *colchicine* 0.1% can induction genetic diversity in rhodes grass with different primers characterized by the presence of polymorphic bands. Soaking for 6 hours with *colchicine* 0.1% increased the size of the leaf stomata. The conclusion of this research is that the difference in soaking time with *colchicine* 0.1% and *regrowth* factor affects at biomass production, nutrient content and cytological characteristics in rhodes grass. Interaction between soaking time and *regrowth* affect for crude protein content.

Keywords: *Chloris gayana* cv. *Callide*, *Colchicine*, RAPD, *Regrowth*, Stomata.